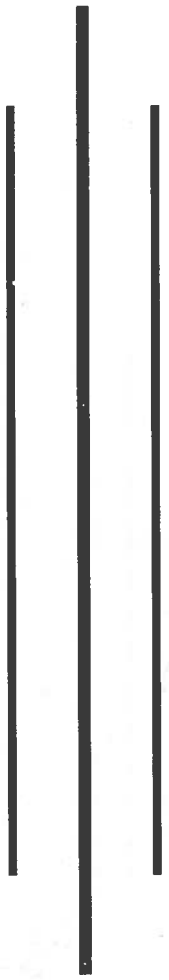
Annual Technical Report

Fiscal year 2074/075 (2017/2018)



GOVERNMENT OF NEPAL

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Foreword

It is my pleasure to present this annual technical report of Central Veterinary Laboratory (CVL) for the fiscal year 2074/075 (2017/018). This issue includes activities and progress report of CVL and five Veterinary Laboratories (VLs).

Disease diagnosis is the foundation for disease control, prevention and eradication. Early and accurate diagnosis of diseases can only be assured in fully equipped laboratories that have range of standardized diagnostic reagents with trained human resource.

Nepal being the member of World Trade Organization (WTO) has to implement SPS measures on scientific merit. Laboratory based diagnosis is of paramount importance for implementing the SPS measures in the territory. Therefore, the role of central and veterinary laboratories including basic laboratories situated in the local level is very important in disease diagnosis of major livestock species in the country. Still there is a scope to uplift the standards and quality assurance of the laboratory diagnosis conducted by existing facilities.

With the establishment of molecular diagnostic techniques at the CVL, routine molecular diagnosis of Avian Influenza, ND, and IBD is 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. We are putting our efforts to upgrade CVL, VLs and NAL to provide reliable and prompt diagnostic services all over the country. We already have good co-ordination with province based and local level veterinary laboratories and the sample flow in the national reference laboratories is routinely being done.

I would like to extend my sincere thanks to Food and Agriculture Organization (FAO) for their support in diagnostic reagents. Likewise, technical support of Australian Animal Health Laboratory (AAHAL) and Veterinary Laboratory Agency (VLA), London for molecular characterization of different viruses is highly acknowledged. Sincere efforts of all VLs family for providing information required for this publication is really appreciable. Finally, I express my personal appreciation and sincere thanks to all the staffs of CVL who worked hard to shape the annual technical report in this form.

Dr. Deker Dev Bhatt
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Abbreviations

AGID:	Agar-Gel Immuno-Diffusion
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
PAT:	Plate agglutination test
PPR:	Pest des Pestes Ruminants
PT:	Proficiency Testing
MoALD:	Ministry of Agriculture and Livestock Development
NAL:	National Avian Laboratory
ND:	New Castle Disease

NPHL:	National Public Health Laboraotry
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

A. 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 lab and Molecular Biology with a considerable progress in the later. At present the molecular based diagnosis of avian influenza is in routine work.

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) Veterinary Laboratory (Dhangadhi). Currently, Province no 3 and 5 do not have veterinary laboratory as per new structure however, diagnostic services and provided by the currently running laboratories. Specimens that cannot be processed in the aforementioned laboratories due to insufficient facilities and expertise 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 over 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:

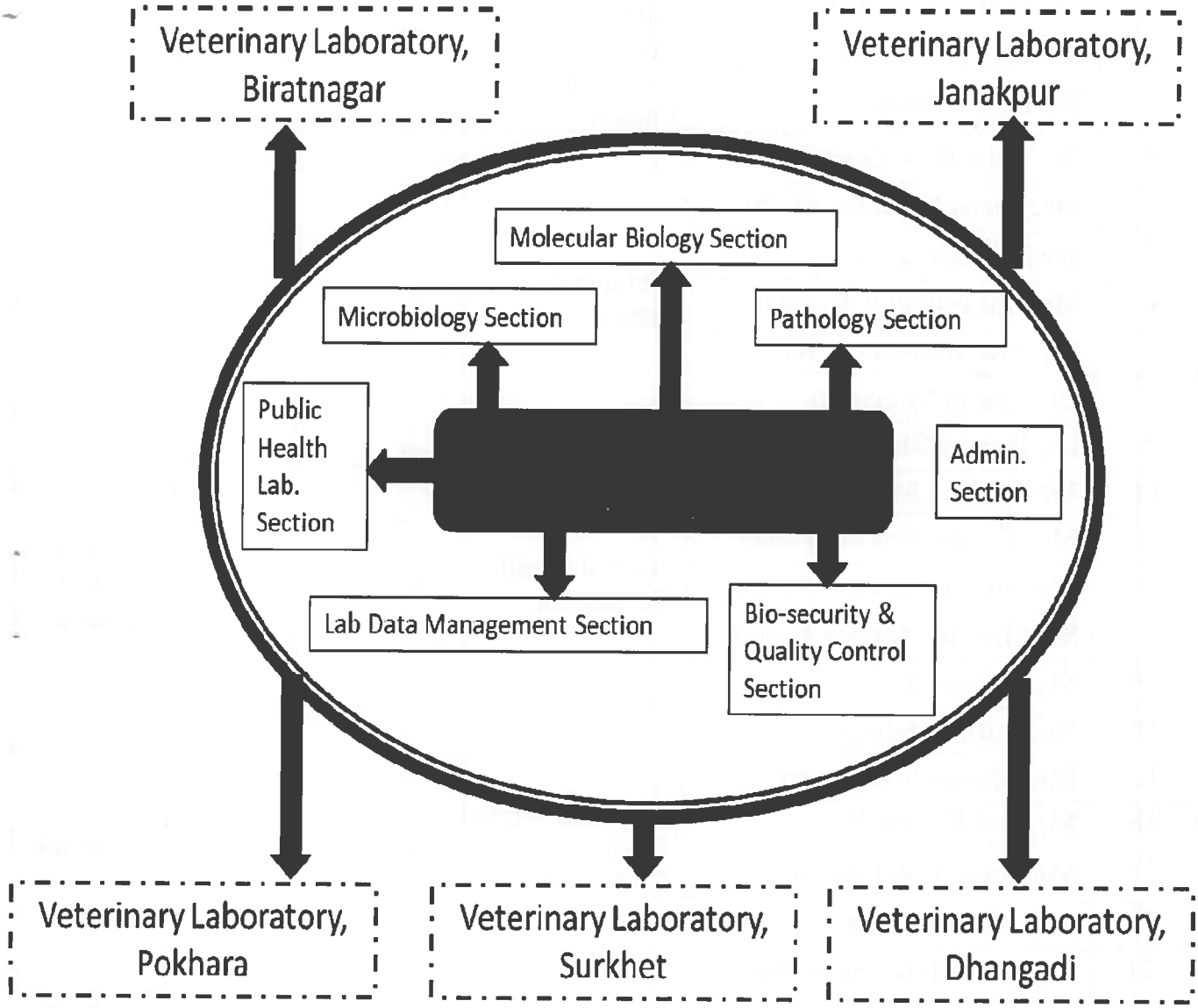


Table 1: List of Staffs working at CVL (At the end of F/Y 2074/075)

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	Dr. Tulsi Ram Gompo	Veterinary Officer	7	7	
4	Mr. Purna Bahadur Budha				
5	Mr.Prakash Devkota				
6	Mr. Bal Bahadur Kunwar				
	Mr. Tek Bahadur Ayer				
7	Dr. Manju Maharjan				
8	Dr. Prativa Shrestha				
11	Mr Krishna Mani Kafle	Animal Health Technician	6	5	1 vacant 1 Study Leave
12	Mr. Shyam Sundar Yadav				
14	Ms. Surya Kumari Dhami				
	Mr Mithiles Kuram Karna				
15	Ms. Sushila Gaire				
16	Mr. Purna Maharjan	Assistant Animal Health Technician	8	6	2 vacant
17	Mr. Bhimsen Adhikari				
18	Mr. Bal Kumar Rai				
19	Mr. Raju Man Ghising				
20	Ms. Hima Basnet				
21	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	26	8

Table 2: Annual program & progress report of CVL in the Fiscal Year 2074/075

S.N.	Activities	Unit	Target	Progress
1	**Parasitology**			
1.1	Fecal examination	Number	300	739
1.2	EPG counts of parasites	Number	120	240
1.3	Skin scrapping examination	Number	45	54
2	**Pathology**			
2.1	Clinical hematological examination	Number	300	600
2.2	Bio-Chemical examination	Number	120	221
2.3	Post-Mortem Examination	Number	1000	5496
2.4	Hitopathological examination	Number	45	15
3	**Micro-Biology**			
3.1	**Bacteriology**			
3.1.1	Isolation and Identification of Bacteria	Number	900	1204
3.1.2	Sample collection, Isolation and Identification of Fungus	Number	90	81
3.2	**Virology**			
3.2.1	Sample collection of virological examination	Number	450	863
3.2.2	Investigation of PPR outbreak	Times	3	5
3.2.3	PPR Diagnosis by ELISA and Pen site Test	Number	60	101
4	**Serology**			
4.1	PPR Sero-monitoring for National PPR control program	Times	3	3 (3312 Nos.)
4.2	Poultry sample collection and examination for salmonella and Mycoplasma	Number	150	463
4.3	HA HI Reagent Purchase for ND Sero-monitoring for National ND Control Program	Times	1	1
5	**Molecular Diagnosis**			
5.1	Molecular Diagnostic examination for Bird-Flu	Number	150	890
5.2	Gene sequencer maintenance	Times	3	3
5.3	Dispatch of sample to international reference laboratories	Times	3	1
6	**Disease surveillance and investigation**			
6.1	Emergency disease investigation team (EDIT) deploying	Times	6	7
6.2	Sample collection and examination of PRRS disease in pig	Times	3	3

S.N.	Activities	Unit	Target	Progress
6.3	Investigation of livestock and poultry epidemics	Times	6	6
7	**Zoonotic disease Investigation**			
7.1	Sample collection and examination for Rabies	Number	150	79
7.2	Sample collection and examination for Brucella.	Number	150	205
7.3	Emerging and Re-emerging Disease Investigation	Times	2	2
9	**Staff Development**			
9.1	Training on Laboratory Technology (30 Days) for mid-Level Technicians	Times	1	1
9.2	Laboratory Technology Transfer	Times	3	5
9.3	Laboratory Program Planning Workshop	Times	2	2
9.4	Advance Laboratory Technology Workshop	Times	3	3
9.4	Regional Level Basic and Primary Laboratory Development Workshop	Times	2	1
9.5	Purchase of technical issues and journals	Times	1	1
10	**Participation in Interaction Programs**			
10.1	Participation on Regional laboratory workshops	Times	5	1
10.2	Participation in Regional review workshops in Regional Directorates	Times	5	4
11	**Laboratory Monitoring**			
11.1	Monitoring and evaluation of Regional and basic laboratories	Times	6	6
12	**Publications**			
12.1	Publication of Laboratory Technical Report	Times	1	1
13	**Laboratory Management**			
13.1	Health examination of staffs	Person	34	29
13.2	Teaching lab management	Times	12	12
13.3	Management of Serum Bank	Times	12	12
13.4	Lab animal management	Times	3	4

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 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), histopathological 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 2074/075, a total of 823 samples were tested by rapid test kit method out of which 295 samples were found to be positive which is shown in the table.

Table 3: Rapid test kit record 074/75

Rapid test record-074/75													
	ND			IB			IBD			AI			
Month	Pos	Neg	Total	Pos	Neg	Total	Pos	Neg	Total	Pos	Neg	Total	Total
Shrawan	15	19	34	0	2	2	24	15	39	0	5	5	80
Bhadra	2	11	13	0	3	3	14	11	25	1	2	3	44
Ashwin	1	6	7	0	1	1	11	7	18	4	0	4	30
Kartik	0	6	6	0	0	0	6	14	20	0	0	0	26
Mangsir	1	5	6	0	0	0	11	12	23	0	6	6	35
Poush	0	28	28	0	2	2	11	14	25	3	15	18	73
Magh	1	34	35	0	5	5	9	18	27	5	20	25	92
Falgun	5	13	18	2	0	2	5	3	8	6	7	13	41
Chaitra	1	12	13	5	9	14	15	17	32	6	33	39	98
Baisakh	5	10	15	3	11	14	32	23	55	5	19	24	108
Jestha	7	11	18	1	9	10	31	12	43	15	34	49	120
Ashad	2	8	10	0	4	4	23	9	32	7	23	30	76
Total	40	163	203	11	46	57	192	155	347	52	164	216	823

Table 4: Species wise distribution of Rabies Tested in CVL (074/75)

SPECIES WISE DISTRIBUTION OF RABIES TESTED IN CVL (074/75)						
Month	canine		Bovine		Equine	
	total	positive	total	positive	total	positive
Shrawan	3	3	0	0	0	0
Bhadra	4	3	0	0	0	0
Ashwin	8	4	1	1	0	0
Kartik	10	9	1	1	0	0
Mangsir	4	3	0	0	0	0
Poush	10	7	0	0	0	0
Magh	4	4	0	0	0	0
Falgun	7	4	0	0	0	0
Chaitra	5	5	2	1	0	0
Baisakh	5	5	0	0	1	0
Jestha	3	3	0	0	0	0

In the fiscal year 2074/75, 73 rabies suspected samples were tested out of which 57 (78.08%) were found to be positive. Most of the samples received were of canine.

Table 5: District wise distribution of Rabies Tested in CVL (074/75)

DISTRICT WISE DISTRIBUTION OF RABIES RECORDED IN CVL (74/75)			
S.no.	**Districts**	**Total cases reported**	**No. of positive cases**
1	Kathmandu	38	33
2	Okhaldhunga	1	1
3	Chitwan	4	3
4	Lalitpur	14	8
5	Rautahat	2	2
6	Bhaktapur	10	6
7	Kavre	3	3
8	Sindhupalchowk	1	1
		73	57

Pathology Section

Post mortem examination, hematology, histopathology and clinical biochemistry are major areas under the pathology section in CVL. Samples are submitted either by Regional Veterinary Laboratories, National Avian Laboratory, Central Veterinary Hospital and District Livestock Service Offices 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 2074/75 a total of 5265 carcasses were bought for necropsy examination at CVL. Detail month wise and species wise distribution is shown in the table below.

Table 6: Species wise distribution of pathological condition diagnosed in CVL (074/75)

Species	Disease/Pathological condition	No. of cases reported
Bovine	Accident	1
Porcine	Classical swine fever	3
	PRRS	1
	Pneumonia	2
Canine	Poisoning	1
	Haemorrhagic gastroenteritis	1
	Pneumonia	1
	UTI	1
Caprine	PPR	2
	Helminthiasis	1
	Pneumonia	2
	Poisoning	3
Total		**17**

Table 7: Month wise 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	67	47	22	31	78	96	54	103	117	92	53	27	787
2	Colibacillosis+ Mycotoxicity	24	15	0	0	7	37	60	7	50	73	38	27	338
3	Colibacillosis + Nephritis	7		0	0	0	0	0	0	0	0	0	0	7
4	Colibacillosi+ Ascites	0	0	0	0	25	44	7	8	44	56	14	0	198
5	Colicomplex+ ImmuNosupression	0	0	4	18	11	10	5	0	3	0	0	0	51
6	Egg peritonitis/ salphingitis	2	4		0	0	0	2	0	6	3	9	0	26
7	Omphalitis	46	35	4	27	0	0	30	23	40	23	27	8	263
8	Omphalitis+ pneumonia	0	0	6	0	7	0	0	0	0	3	0	0	16
9	Omphalitis+Ascites	1	0	0	0	0	0	0	0	0	6	0	0	7
10	Pasteurellosis	1	2	0	0	0	0	2	0	8	0	0	0	13
11	Salmonellosis	1	0	1	2	0	3	5	2	4	9	14	5	46
12	Nephritis	1	9	8	9	19	10	12	13	12	8	7	7	115
13	Fatty liver syndrome	0	0	0	2	0	8	3	5	7	14	10	2	51
14	Necrotic enteritis	0	0	0	2	0	3	4	0	0	4	7	1	21
15	Enteritis	6	6	3	20	8	10	28	6	4	6	11	2	110
16	Pneumonia	2	0	0	0	0	0	1	2	6	3	7	1	22
17	Chronic Respiratory Disease	61	51	66	77	55	31	68	35	22	27	25	18	536
18	CCRD	36	65	22	17	35	28	42	29	26	46	38	11	395
19	CRD+ Mycotoxicosis	121	0	57	30	12	8	68	56	0	48	43	16	459
20	CRD+ Coccidiosis	0	0	4	0	0	0	0	0	0	0	0	1	5
21	CRD+ ImmuNosuoression	0	0	6	0	3	0	3	0	11	0	0	0	23
22	CRD + Ascites	11	20	18	10	5	24	16	40	10	9	0	1	164
23	CCRD+ ascites	0	0	0	0	0	0	6	3	0	6	3	1	19
24	CCRD+ Toxicosis	0	0	5	0	4	2	2	12	15	24	16	4	84
25	CRD+ Toxicosis+ Ascites	0	0	0	0	0	0	0	7	4	6	0	0	17
26	Avian Influenza	0	1	0	0	0	0	4	8	6	4	14	6	43

S. no.	Disease/ Pathological conditions	Shrawan	Bhadra	Ashwin	Kartik	Mangsir	Poush	Magh	Falgun	Chaitra	Baisakh	Jestha	Ashad	Total
27	New Castle disease	15	1	2	0	1	2	2	5	2	5	4	2	41
28	Infectious Bursal Disease	14	13	6	6	10	7	8	5	11	18	20	11	129
29	Infectious Bronchitis	0	0	1	0	0	0	0	2	4	3	4	0	14
30	IBD+ Colibacillosis	1	0	0	0	0	1	1	0	0	2	2	4	11
31	IBD+ CRD	9	1	4	0	0	0	0	0	0	0	1	2	17
32	IBD + Coccidiosis	0	0	0	0	0	0	0	0	0	0	1	2	3
33	IBD+ ascites	4	0	0	0	1	3	0	0	0	3	1	0	12
34	IBD+ toxicity	2	1	0	0	0	0	1	0	1	1	1	4	11
35	Leechi Heart disease	0	0	0	0	0	0	0	0	0	1	0	0	1
36	Marek's Disease	0	0	0	0	0	0	4	0	0	2	0	2	8
37	Avian Leucosis	0	5	1	2	8	0	0	4	5	1	0	0	26
38	Fowl Coryza	1	7	0	0	0	0	0	0	0	0	0	0	8
39	Coccidiosis	12	15	3	4	2	14	2	15	1	6	5	6	85
40	Dirrhoea	0	0	9	15	0	0	11	0	0	5	6	0	46
41	Aspergillosis	0	0	0	0	0	0	0	0	0	0	4	1	5
42	Mycotoxicosis	40	31	10	5	10	11	33	4	42	53	30	40	309
43	Gout	0	0	3	0	0	0	6	0	8	10	5	1	33
44	Hydropericardium+ ascites	0	0	0	3	2	0	0	0	0	0	0	0	5
45	Ascites	18	8	8	23	1	2	22	16	41	52	9	9	209
46	Deficiency syndrome	5	0	4	0	0	0	9	4	5	4	0	1	32
47	ImmuNosupression	16	3	3	12	6	10	9	0	8	9	4	6	86
48	Vaccine stress	8	10	0	4	14	9	5	5	9	4	11	0	79
49	Stress	0	0	6	4	0	0	0	1	8	2	2	0	23
50	Putrified caracass	0	4	0	0	0	0	0	1	0	0	0	0	5
51	SDS	0	3	0	0	0	0	0	0	0	0	0	0	3
52	Helminthiasis	1	3	0	0	0	0	0	0	0	2	0	1	7
53	Fowl Pox	2	0	0	0	0	0	0	0	0	0	5	1	8
54	ALC+ Toxicosis	0	0	0	0	9	41	0	0	0	0	0	1	51
55	Toxicosis+ Ascites	21	10	3	7	1	4	21	15	31	29	13	7	162
56	Duck Viral enteritis	1	0	0	0	0	0	0	0	0	0	0	0	1
57	Histomoniasis	0	0	0	0	0	0	0	0	0	0	0	1	1
58	Avian Encephalomyelitis	0	1	0	0	0	0	0	0	0	0	0	0	1
	Total	557	371	289	330	334	418	556	436	571	682	464	240	5248

Heamatology And Biochemestry Unit

A total of 600 Blood samples were tested in FY 2074/075 for blood analysis. Out of 443 cattle blood samples examined 70 were positive for *Babesia spp.*, 46 for *Anaplasma spp.* and rest were negative for any Blood Parasite. Simailarly out of 20 buffalo blood samples, 1 was positive for *Babesia spp.*a nd 1 for *Anaplasma spp.*, rest were found negative. Out of 83 Dog blood samples, 2 were positive for *Babesia spp.*, 11 *E-caniese* and rest were negative for any blood parasites. Out of 12 Horses/Mule blood samples examined, 1 was positive for *Babesia spp.* And out of 32 Goat and Sheep blood samples all were Negative.6 Pig and 4 Rabbit blood samples were tested but all were found negative for any blood parasites.

Table 8: Blood samples were tested in FY 2074/075 for blood analysis.

Species	PCV	HB	TLC	DLC	Blood protozoa positive	Total Sample	Remarks
Cattle	443	443	443	443	70Babesia, 46 Anaplasma sps	443	
Buffaloes	20	20	20	20	1 Babesia sps 1 Anaplasma sps	20	
Dog	83	83	83	83	2 babesia, 11 E-canese	83	
Horse	12	12	12	12	negative	12	
Goat/Sheep	32	32	32	32	negative	32	
Pig	6	6	6	6	negative	6	
Rabbit	4	4	4	4	negative	4	
Total Sample	**600**	**600**	**600**	**600**		**600**	

A total of 221 samples were tested for biochemical parameters in FY 2074/075. The result is shown on table below:

Table 9: Total Biochemical Test performed of different species in FY 2074/75

Type of Sample tasted	Test Requested	Dog	Cattle	Buffaloes	Goat	Sheep	Total	Remarks
Urine	RME	1	7	3			11	
	Calcium	3	20	2	41	4	70	
	Phosphorous		20	2	41	4	67	
	Magnesium		20		41	4	65	
Serum	Glucose	8					8	
Total		**12**	**67**	**7**	**123**	**12**	**221**	

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 were 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 were commonly used as per the guidelines for detection of parasites.

Table 10: ***Parasites identified during the fiscal year 2074/75:***

Month	No. of Sample	Liver Fluke	Paranphistomum	Strongyles	Strongyloid	Trichuris	Ascaris	Moniezea	Coccidia	Capillaria	Mange-Mites
Shrawan	74/49	17	3	3	0	0	0	0	0	0	0
Bhadra	71/24	17	0	7	0	0	0	2	1	0	0
Ashwin	47/17	18	4	6	0	0	0	1	0	0	1
Kartik	58/23	8	18	8	0	0	0	1	0	0	0
Mangshir	78/30	26	11	7	2	0	0	1	1	0	0
Paush	71/32	18	9	5	1	0	0	1	0	1	4
Magh	81/27	38	2	4	2	0	3	3	0	1	1
Falgun	65/28	27	0	7	0	0	0	3	0	1	0
Chaitra	69/36	12	2	10	1	2	1	1	3	0	1
Baishakh	33/14	3	3	7	1	0	0	0	1	2	2
Jestha	181/33	7	3	36	3	1	0	2	0	112	3
Ashad	106/57	7	5	19	0	3	3	3	12	0	3
Total	**932/370**	**198**	**60**	**119**	**10**	**6**	**7**	**18**	**18**	**117**	**15**

Microbiology Section

Bacteriology and mycology unit:

The bacteriology unit receives 904 samples from various sources such as farmers, central veterinary hospital, referral samples from private clinics, Veterinary Laboratories and direct from the field as well local level. In total 786 samples were received to this unit in fiscal year 2074/75. The sample received was milk, urine, tissues, water, nasal swabs, ear swabs and skin scrapping. Different bacterial species were isolated from specimens (milk, urine, tissues, water, nasal swab, ear swab and skin scrapping) in the FY 2074/75.

Table 11: The bacterial species isolated in the laboratory in the FY 2074/75

S.N.	Bacterial species	Number of isolated
1	Escherichia coli	175
2	Bacillus spp.	133
3	Klebsiella spp.	7
4	Staphylococcus spp.	156
5	Streptococcus spp.	159
6	Proteus	13
7	Micrococcus	28
8	Pseudomonas	17
9	Shigella spp.	6
11	Enterobacter	57
12	Salmonella spp	11
13	Pasteurella	7
14	Yersinia	6
15	Cryptococcus	1
16	Corynebacterium	7
17	Acinetobacter	2
18	Seratia spps	1
Total		**786**

A total of 45 fungal samples were received in this unit for mycological culture and among these 19 samples were found negative for fungal growth. The most common fungus isolate from pathological lesion of PM sample and poultry feed are *Penicillium* and *Aspergillus spp.*

Table 12: The fungal species isolated in the laboratory in the FY 2074/075

S.N.	Fungal species	Number of isolated
1.	Penicillum	8
2.	Aspergillus	15
3.	Candida spps	2

CMT and Bacteriological test for milk samples:

A total of 304 bovine samples were received in this unit for California Mastitis test, bacteriological culture along with drug sensitive test and 118 no growth on bacteriological culture.

Table 13: The bacterial species isolated in the milk samples of CMT positive cases in the FY 2074/75

S.N.	Bacterial species	Number of isolated
1.	Escherichia coli	50
2.	Bacillus spp.	38
3.	Staphylococcus spp.	51
4.	Streptococcus spp.	54
5.	Micrococcus	9
6.	Enterobacter	1
7.	Cryptococcus	1

Table 14: The bacterial species isolated in the general samples in the FY 2074/75

S.N.	Bacterial species	Number of isolated
1	Escherichia coli	125
2	Bacillus spp.	95
3	Klebsiella spp.	7
4	Staphylococcus spp.	105
5	Streptococcus spp.	105
6	Proteus	13
7	Micrococcus	19
8	Pseudomonas	17
9	Shigella spp.	6
11	Yersinia spp	6
12	Enterobacter	56
13	Salmonella spp	11
14	Pasteurella	7
15	Seratia	3
16	Corynebacterium	7
17	Acinetobacter	2

Antibiotic Sensitivity Test:

General samples: (milk, urine, ear swab, skin scrapping, Post-mortem samples of poultry, different organ of different animal and water sample)

The bacterial isolates from the 600 general sample out of suspected samples after postmortem examination, receives from different sector of different animal, were collected and brought to bacteriology unit for bacterial culture. Out of these samples 175 were found no growth.

Among the antibiotic Gentamycin, Ceftriaxone, ofloxacilin, Chloramphenicol, Clavulinic and ceftazidime were sensitive to *E.coli, Bacillus,* and *Salmonella spps.*

Table 15: Antibiotic sensitivity test result in General sample in the FY 2074/75

S.N.	Bacterial species	Antibiotic sensitivity percentage %												
		G	Ex	cf	Am	T	Ctr	A	Of	Cx	C	Nitr	CAZ	PG
1	Escherichia coli	56.5	66.6	56.5	15.3	57	84.6	15.3	60	60	58.3	62.5	66.66	40
2	Bacillus spp.	48.3	60	77	66.66	53.8	44.4	45.8	40	55	46	71.4	45.8	71
3	Staphylococcus spp.	73	75	73.2	33.3	60	50	33.33	57.1	52.9	53.8	53	40	45.4
4	Streptococcus spp.	33.3	75	73	33.3	66.66	81	25	62.5	45.4	40	58.3	58.8	62
5	Shigella Spp.	40	-	60	40	50	-	40	-	-	-	50	50	50
6	Salmonella Spp	44.4	-	44.4	33.3	66.6	-	33	-	-	-	100	0	70
7	Klebsiella	50	-	57	42.8	71.4	-	33.3	-	-	-	71.4	0	-
8	Proteus	60	-	60	40	50	-	40	-	-	-	100	0	50
9	Acinetobacter	100	-	100	50	50	-	50	-	-	-	-	0	100
10	Yersinia	40	-	60	40	50	-	40	-	-	-	50	50	50
11	Pseudomonas	42.8	0	60	41.6	47.8	41.6	67	0	-	-	41.6	66.66	42.8
12	Enterobacter	48	53.8	48	75	52.6	64.5	54.5	66.66	75	68.7	60	63	50
13	Pasteurella	60	-	57	66	-	-	0	-	-	-	57	0	71.4
14	Micrococcus	40.8	-	41	41.6	52.9	41.6	23	-	-	-	63	58.8	42.8
15	Corynebacterium	40	-	60	60	66.66	-	40	-	-	-	100	0	50

Note:

G-Gentamycin, **T-Tetracycline,** **Cip-Ciprofloxacin,**
Am-Amoxycillin, **A-Ampicillin,** **C-Chloramphenicol, Cotrimoxazole,**
Cx-Cefoxitime , **Ex-Enrofloxacillin,** **Of-Ofloxacin,**
C-colistin, **Ctr-Cetriaxone,** **Cot-Cotrimoxazole,**
CAZ-Clavulinic+ceftizidime

Milk sample:

304 milk samples were received in this fiscal year, out of this 186 milk samples were positive. The bacteria isolated from this positive samples were subjected to antibiotic sensitivity test. Among the antibiotic Gentamycin, cetriaxone, cotrimoxazole are sensitive for the treatment of cattle in case of mastitis disease for the given organism.

Table 16 : Antibiotic sensitivity test result in mastitis in the FY 2074/75

S.N.	Bacterial species	Antibiotic sensitivity percentage										
		G	Ex	cf	Am	T	Cot	A	ctr	C	Ak	O
1	Escherichia coli	90	-	90	33.3	46	90	28.5	94	40	75	41.6
2	Bacillus spp.	89	33.3	89	10.8	11	38.8	33.3	-	57	0	33.3
3	Enterobacter spp.	100	-	-	0	0	-	0	-	-	-	-
4	Staphylococcus spp.	94	33.33	90.3	33.3	46	88.6	28.5	94	58.3	75	41.6
5	Streptococcus spp.	95	44.4	95	42.8	41.6	95	32.2	95	43.7	78	41.6
6	Cryptococcus spp.	100	-	100	0	0	-	0	100	-	-	-
7	Micrococcus spp.	66.6	28.5	66.6	33.3	66	100	33	-	-	0	100

Note:

G-Gentamycin, T-Tetracycline, Cip-Ciprofloxacin, Am-Amoxycillin, A-Ampicillin, C-Chloramphenicol, Ex-Enrofloxacillin, O-Orfloxacin, Ctr-Cetriaxone, Cot-Cotrimoxazole, Ak-Amikacin

Antimicrobial resistance Activity in Central Veterinary Laboratory

Antimicrobial resistance (AMR) is one of the major challenges of public health in this century and a threat to current as well as future medical advance. In Nepal, AMR surveillance program was first started in 1999 with the financial support of USAID and technical support of ICDDR, B (International Centre for Diarrheal Disease Research/ 0Bangladesh).

Since 2004, NPHL, as a national coordinating laboratory, continued this program financially supported by the WHO. As a coordinating laboratory, NPHL has formed national network of AMR surveillance presently with 18 participatory laboratories (Human).Since 2012 CVL has also being participatory laboratory on AMR surveillance activity in country from the part of animal health. As a participatory laboratory, CVL coordination and data dissemination for Antimicrobial susceptibility through workshop and AMR training yearly .CVL receives unknown bacterial strain from NPHL (Quarterly) for Isolation of organism and send report to NPHL as for EQA. Testing and send feedback of the report. Till now 6 Samples were received quarterly and isolated the organism and subjected to Antibiotic sensitivity test accordingly prefer through the NPHL.

Table 17: Organism included in National AMR surveillance in Nepal

S.N.	Diseases	Species
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 diarrheal diseases	*Shigella spp*.S.dysentriae,S.flexneri,S.boydii,S.sonnei *Salmonella spp* *Vibrio cholerae*
5.	Pathogens of blood	*Salmonella typhi, S.paratyphae*
6.	Pathogens of community acquired UTI	Extended Spectrum Beta-lactamase Producing *Escherichia coli*

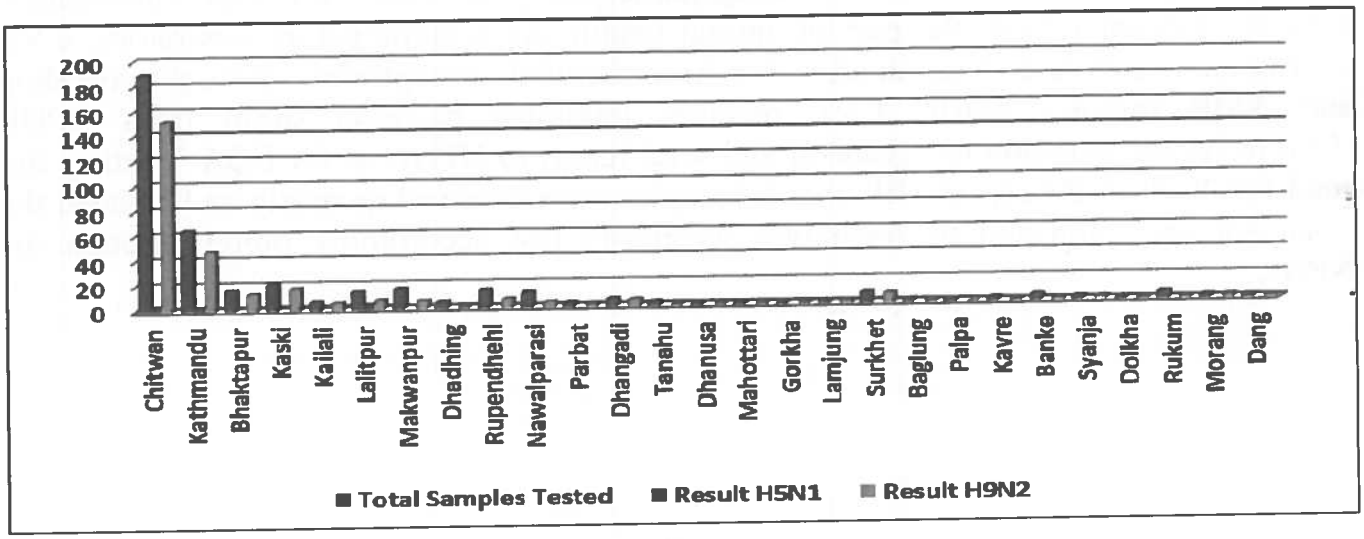
Molecular Biology Section

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. This laboratory has started to diagnose disease especially avian influenza by using RT-PCR technique. This technique is also useful for the epidemiological study of diseases and understanding of the genetic relationships between and within species of infectious organisms.

In the Fiscal year 2074/75, a total of 410 swab samples of avian species suspected for avian influenza were received from twenty seven districts. Those samples were tested by using Real Time Reverse Transcriptase Polymerase Chain Reaction (rRT PCR) for Mgene firstly. Mgene positive samples were further tested for individual sample to confirm subtype H_9N_2, H_5N_1 and H_7N_9. Out of those samples, 8 samples for subtype H_5N_1 and 295 samples for subtype H_9 were found positive. During this period, HPAI outbreak was occurred in three districts (Chitwan, Kathmandu and Lalitpur).

Figure 1: Test results of avian influenza virus from suspected samples by PCR Method



CVL also received different types of bio-surveillance sample (TS/CS/ES/NS) at different time. A total of **1597** samples were tested by using PCR method. Only 110 samples were positive for Subtype H9.

Molecular unit has also started multiplex PCR to diagnosed small ruminant respiratory pathogens (*Pasteurella, Mycoplasma capricolum subsp. capripneumoniae* (MCCP), Peste des petitis ruminant virus (PPRV) and Capripox virus) *and* Swine disease pathogens (African swine fever virus, Classical swine fever virus, Salmonella and Erysipela*).*

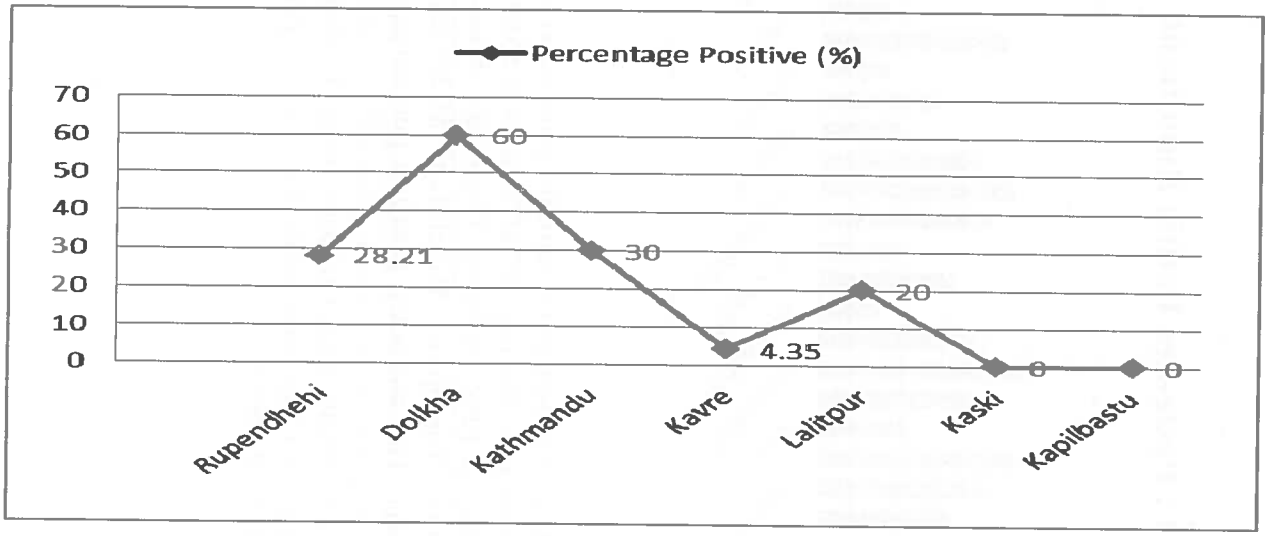
This unit was also participated in proficiency testing of avian diseases especially AI and ND.

Serology Unit

Serology unit 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 were 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.

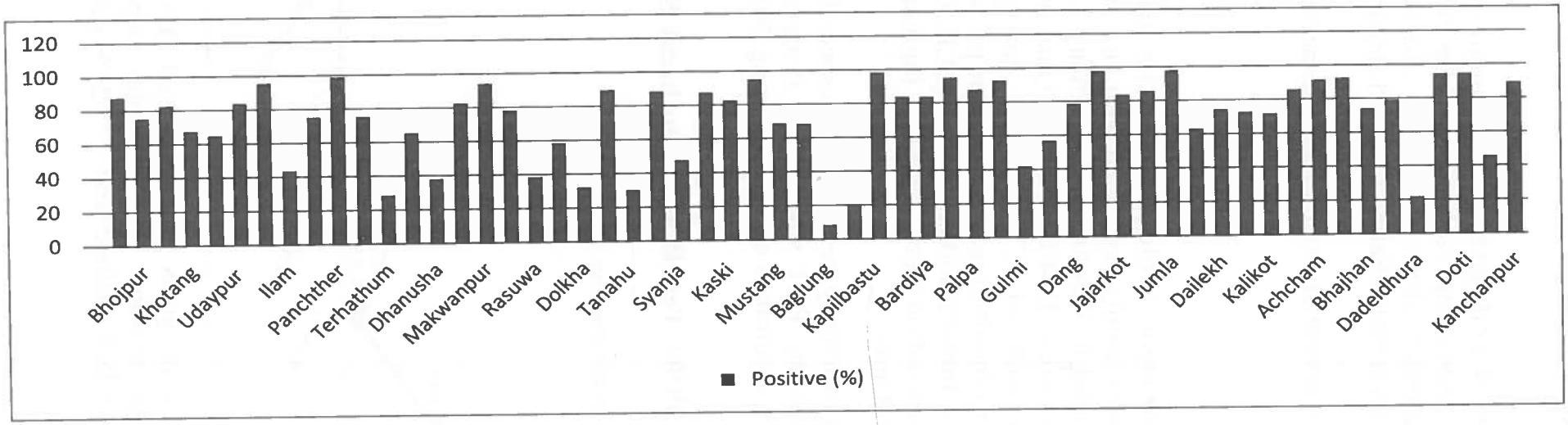
Serology Unit also participate in proficiency testing (PT) especially for PPR diagnosis by ELISA method and Brucellosis by PAT since 2016. Progress report of Serological investigation of various diseases in animals and birds during 2074/075 is as follows

Figure 2 : Peste-des Petitis Ruminant (PPR), Test Results (Outbreak Samples)



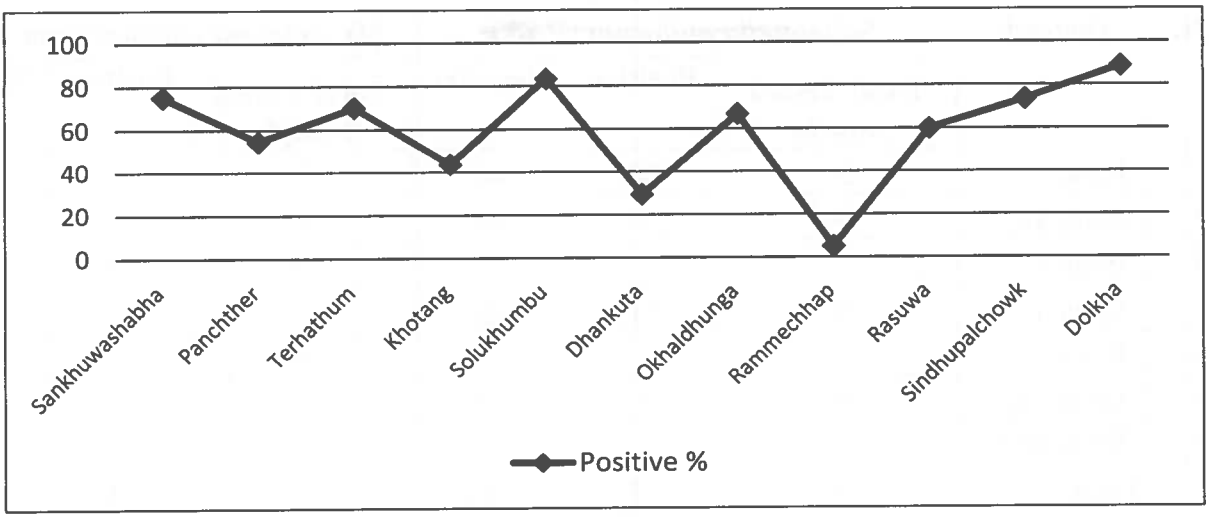
A total of 106 serum/swab samples of goats were received from different outbreaks areas of seven districts at different seasons. These samples were tested by either PCR method or Penside method or ELISA method and 17.92 % samples were found positive for PPR.

Figure 3 : Peste-des Petitis Ruminant (PPR) Seromonitoring C-ELISA Antibody Test Results



In case of sero-monitoring, sample collection was done at the end of 2073/74 and tested in 2074/75. CVL received serum samples from 58 districts. During 2074/75, a total 5689 serum samples of vaccinated goats were tested. Out of those samples, 74.95% were found positive for PPR antibody. The result shows that the PPR antibody positive percentage was found highest (more than 90%) in thirteen districts (Taplejung, Panchther, Makwanpur, Gorkha, Kapilbastu, Pyuthan, Rolpa, Mugu, Jumla, Achham, Baitadi, Darchula and Doti). The antibody positive percentage found in the serum samples of Ilam, Therthum, Dhanusa, Dolkha, Tanahu, Syanja, Baglung, Argakhanchi, Gulmi, Dadeldhura and Kailali (11 districts) were not satisfctory (below 50%). The antibody positive percentage between 50-89 found in remaining 34 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.

Figure 4 : Newcastle Disease Virus (NDV) Seromonitoring HI Test Results



Like wise in case of sero- monitoring of newscastle disease, a total of 166 poultry serum samples were received from different 11 districts and these samples were tested by haemeagglutination inhibition (HI) test method. Only ninety two samples (92) were found positive for NDV. The titer of all the samples falls in between 5 to 9 HI units.

Table 18 : Antibody Test Result of Brucellosis Antibody by ELISA /PAT

S.N.	Districts	Species	Total Tested sample	Test Results	
				Positive	Negative
1	Nawalparasi	Caprine	15	0	15
2	Kailali	Swine	5	0	5
3	Chitwan	Bovine	8	0	8
4	Kaski	Swine	7	0	7
5	Khotang	Bovine	25	0	25
6	Makwanpur	Caprine	5	0	5
7	Kathmandu	Canine	1	0	1
Total			**66**	**0**	**66**

A total of 66 serum samples from bovine, Caprine, swine and canine were tested for *Brucellosis* antibody by ELISA and PAT method and None of the samples were found positive for brucellosis.

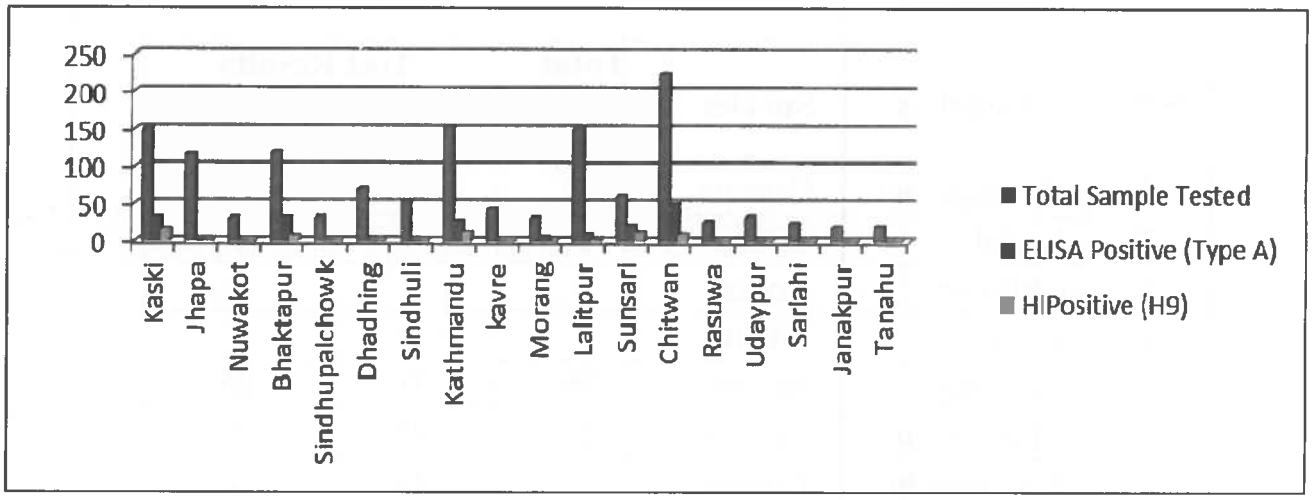
A total of 170 pig serum samples from Kailai, Sunsari, Jhapa, Kathmandu and Lalitpur were tested for antibody of PRRS by ELISA method, None of the samples were found positive for PRRS.

Table 19: Antibody Test Results of *Salmonella pullorum* and *Mycoplasma gallisepticum* in poultry serum by using Plate Agglutination Test (PAT)

S.N.	Districts	*Salmonella pullorum* (PAT)			*Mycoplasma gallisepticum* (PAT)		
		Total Tested sample	Positive	Negative	Total Tested sample	Positive	Negative
1	Kaski	50	10	40	50	8	42
2	Sindhuli	50	7	43	50	9	41
3	Banke				45	34	11
4	Sarlahi	39	11	28			
5	Kavre				30	2	28
6	Dhadhing	28	5	23	28	5	23
7	Bhaktapur				20	0	20
Total		167	33	134	223	58	165

A total 167 and 223 number of poultry serum samples were tested for *Salmonella pullorum* and *Mycoplasma gallisepticum* antibody respectively by PAT method. Only 33 samples were found positive for *Salmonella pullorum* whereas 58 samples were positive for *Mycoplasma gallisepticum* antibody.

Figure 6 : Avian Influenza Virus (AIV) Sero-surveillance HI Test Results



One thousand three hundred sixty five (1365) serum samples from commercial broiler and layers and backyard poultry were received from different districts. These samples were screened for Flu A by using Avian Influenza Antibody Detection ELIZA Test Kit (IDEXX). One hundred eighty one samples (**181**) were found positive for Flu A. The positive samples of poultry serum were further tested for HI test. Only sixty five samples (**65**) were found positive for H9. This ELIZA Test Kit is only for screening and not for confirmatory test. So the remaining Flu A positive samples are either other subtypes or false positive.

B. VETERINARY LABORATORY, BIRATNAGAR

1. Introduction

Veterinary Laboratory (VL) previously named as Reginal 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. 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.

2. 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 VHLECs & Local Authority in disease diagnosis and epidemic control.
- To supervise and assist in diagnostic services to basic and primary laboratories situated in VHLECs & 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.

3. Annual Progress Report (2074/2075)

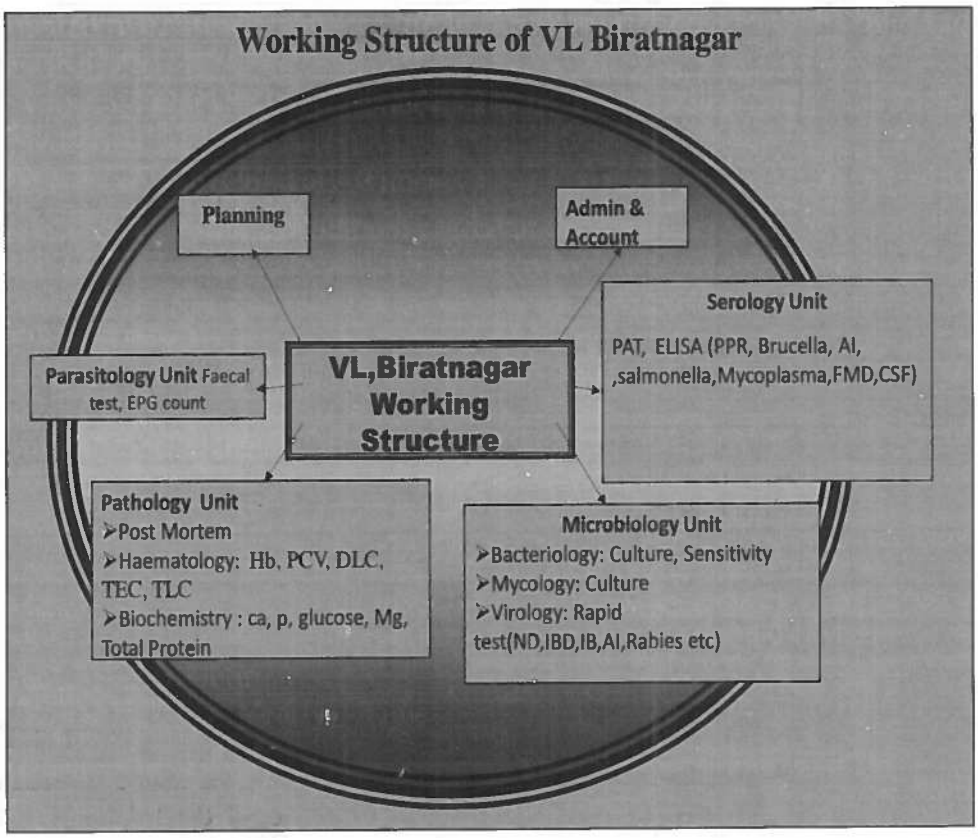
तृतिय चौमासिक तथा वार्षिक प्रगति प्रतिवेदन

आ.व. २०७४/०७६

पशुपन्छी रोग अन्वेषण प्रयोगशाला
विराटनगर
डा.संजय कुमार यादव
बरिष्ठ पशु विकास अधिकृत

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

	प्रयोगशालाको प्रकार	संख्या	ठाउँ
१	पशुपन्छी रोग अन्वेषण प्रयोगशाला, विराटनगर	१	विराटनगर, मोरङ्ग
२	बेसिक प्रयोगशाला	८	ईलाम, झापा, धनकुटा, उदयपुर, सिरहा, सप्तरी, सुनसरी
३	प्राईमरी प्रयोगशाला	८	सोलु, ओखलढुंगा, खोटाङ्ग, संखुवासभा, भोजपुर, तेह्रथुम, ताप्लेजुङ्ग, पाँचथर र मोरङ्ग



पशुपन्छी रोग अन्वेषण प्रयोगशाला, विराटनगरको प्रमुख कार्यहरु

१. नियमित प्रयोगशाला परीक्षण सेवा ।

२. रोगको निगरानी, नमुना संकलन र परीक्षण ।

३. खोपको प्रभावकारीता जाँच्न सिरोमनिटरिङ्ग गर्ने ।

४. माहामारी रोग अन्वेषण तथा नियन्त्रण ।

५. जुनोटिक रोग अन्वेषण तथा नियन्त्रण ।

६. रोगको ईपिडेमियोलोजिकल रेकर्ड संकलन, अध्ययन र प्रकाशन ।

७. बेसिक तथा प्राईमरी प्रयोगशाला अनुगमन र सुदृढीकरणमा सहयोग ।

८. प्रयोगशाला सेवा सम्बन्धी तालिम तथा अन्तरक्रिया कार्यक्रम ।

९. क्षेत्रीयस्तरमा पशुपंक्षीका खोपको भण्डारण र वितरण ।

१०.पूंजीगततर्फका कार्यक्रमहरु ।

११.अन्य विविध कार्यहरु ।

Annual Progress Report (2074/075)

S.N.	Programs	Unit	Annual Target	Annual Progress	Annual Weightage	Progress %
A	**Capital**					
1	BSL -2 Laboratory building construction	Times	1	1	18.07	100
2	Furniture FixturePurchase	Set	1	1	.45	100
3	Motor cycle Purchase	No.	1	1	.9	100
4	Ware House construction	Percentage	100	80	11.29	80
5	Compound Wall construction	Times	1	1	4.52	100
B	**Recurrent**					
1	Laboratory training for technicians (2 weeks)	Times	2	2	3.84	100
2	Workshop on animal disease diagnosis (Regional Level)	Times	1	1	0.27	100
3	District level technical Workshop on sample collection and dispatch	Times	6	6	0.87	100
4	Workshop on animal disease diagnosis (Field level)	Times	6	6	0.87	100
5	EPG Count	No.	150	150	0.05	100
6	Blood Protozoa examination	No.	225	373	0.16	100
7	Skin Scraping Examination	No.	36	41	0.04	100
8	Clinical Haematological Examination		180	373	0.09	100
9	Biochemical Examination Calcium,Phosphorus,Total Protein,Glucose,Cu,co,Iron		180	225	0.18	100
10	Urine Test	Nos.	90	90	0.12	100
11	Postmortem Examination	Nos.	270	1427	0.11	100
12	Bacterial Culture & Identification	Nos.	270	299	0.33	100
13	Fungus Culture & Identification	Nos	45	111	0.09	100
14	Viral Disease Examination	Nos	150	348	0.72	100
15	PPR Pen site Examination	Times	6	6	0.14	100
16	Mycoplasma Identification in poultry	Nos.	150	228	0.2	100
17	Salmonella Identification in poultry	Nos.	150	215	0.2	100
18	Sample Collection & dispatch	Nos.	450	606	0.16	100

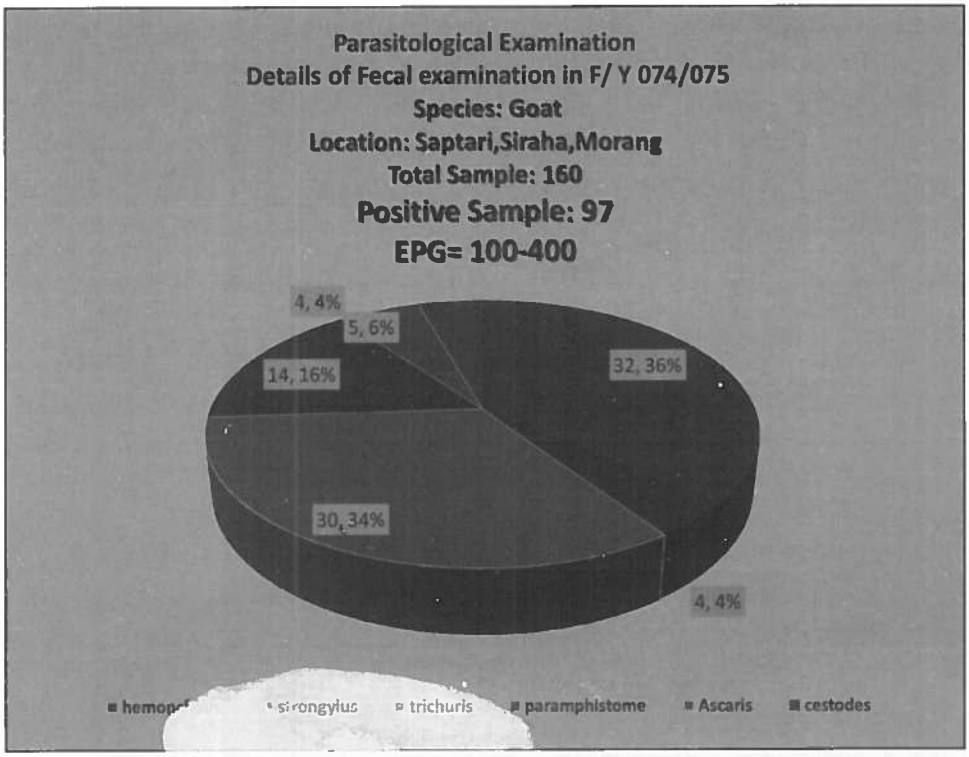
S.N.	Programs	Unit	Annual Target	Annual Progress	Annual Weightage	Progress %
	to CVL					
19	FMD NSP ELISA Examination	Times	1	1	0.79	100
20	Investigation of Sub Clinical Mastitis Test & repotting	Times	3	3	0.16	100
21	Regional Emergency district investigation team management	Times	6	6	0.19	100
22	Investigation of Epidemic Disease	Times	6	6	0.45	100
23	Avian influenza Rapid test	Nos	45	65	0.2	100
24	Brucella examination	Nos.	150	247	0.14	100
25	Rabies examination	Nos.	50	50	0.34	100
26	Publication of Half yearly Epidemiological Bulletin	Times	2	2	0.09	100
27	Publication of Yearly Epidemiological Bulletin	Times	1	1	0.07	100
28	Anti-Rabies Vaccination for staff	Person	14	14	0.19	100
29	Health check for Laboratory staff	Person	14	14	0.19	100
30	Regional Level Vaccine bank management of Rabies, FMD & PPR	Times	3	3	0.2	100
31	Seromonitoring for PPR, FMD, Swinfevar & NDV sample collection & dispatch	Dist.	16	13	1.13	100
32	Swine fever diagnosis (NSP ELISA)	Times	1	1	0.97	100
33	Disease Surveillance and sample collection in Live animal market	Times	12	12	0.27	100
34	Antibiotic Residue Test in milk and meat sample	No.	45	50	0.34	100
35	M. bovis identification in Cattle/ Buffalo	No.	45	50	0.2	100
36	Glanders surveillance in Equine(Horse/Mules)	Times	1	1	1.13	100
37	Surveillance of TrypaNosomiasis	Times	5	5	2.26	100
38	Investigation and Documentation of regional level priority Disease	Times	3	3	0.2	100
39	Sample collection and investigation form infertility camp	Times	6	6	0.14	100

4. 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 identify the bacteria responsible for this disease. Blood samples are received here, particularly for Hb, PCV, TC, DLC tests, total protein 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) is done to isolate tuberculosis affected animal. Examination of skin scraping and urine samples is frequently done in VL, Biratnagar.

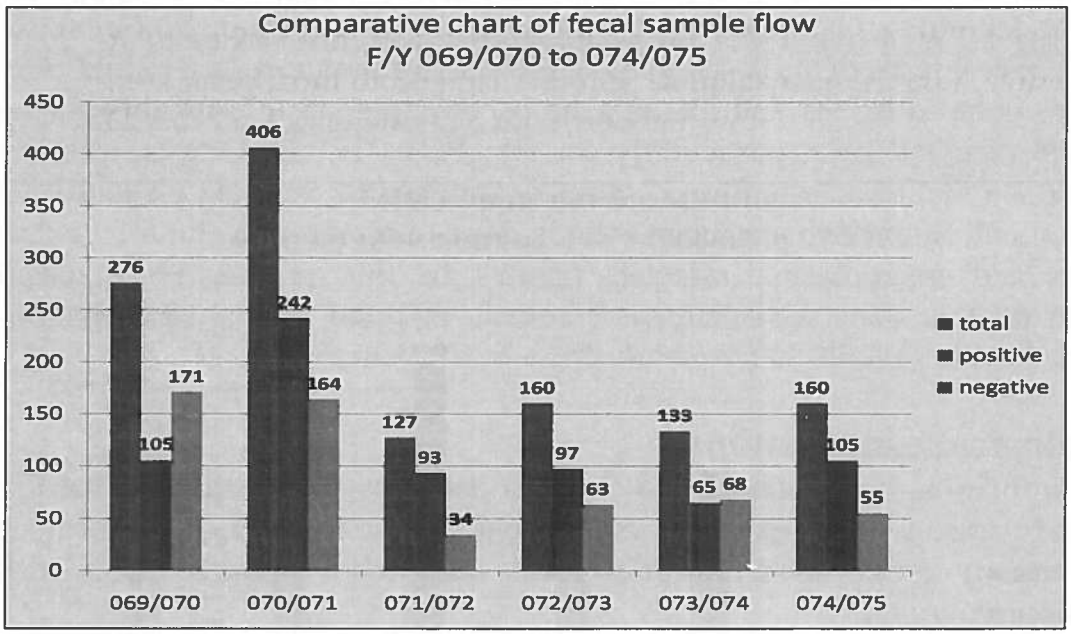
Parasitological examination

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 farmers, local levels and also collected from field during investigation programs.



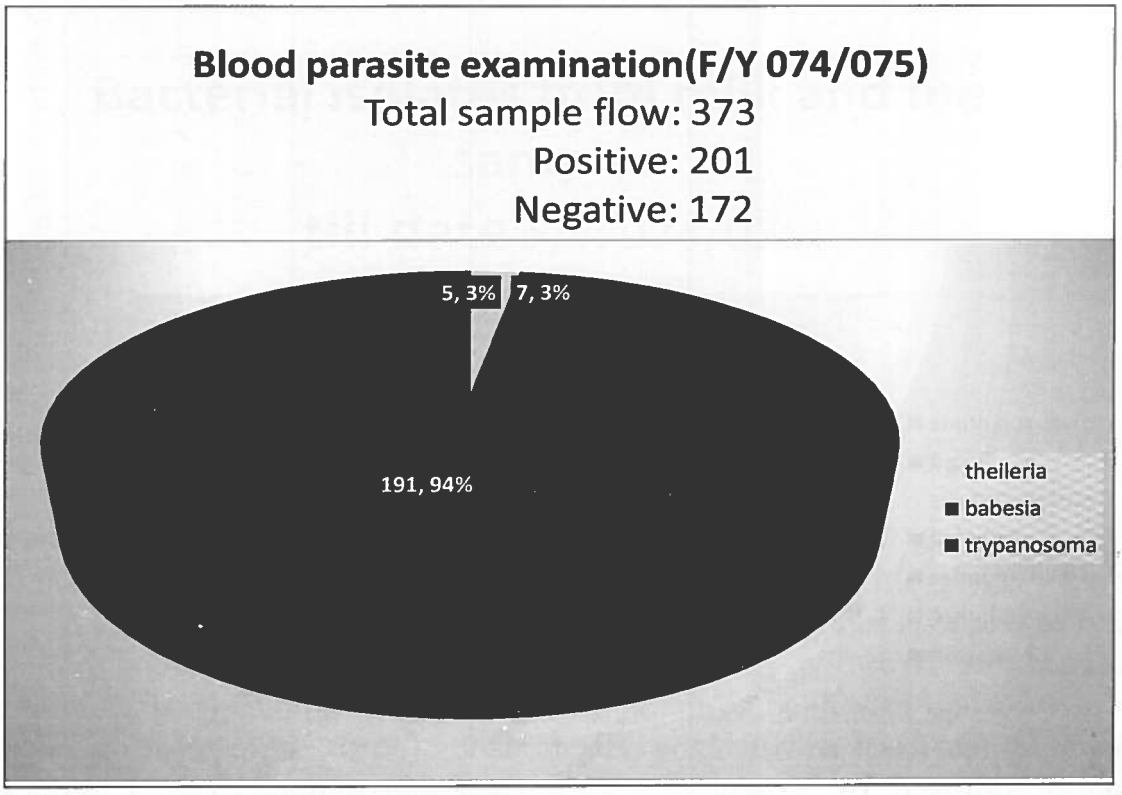
Most frequently the fecal examination is done by sedimentation and floatation techniques to identify the gastro-intestinal parasites. However, in certain cases, Modified Mac Master Technique is followed to quantify the eggs per gram (EPG) in feces.

In the fiscal year 2074/075, altogether 160 fecal samples from different species of animal were received and examined. Among 160 samples, 97 samples (60.62%) were positive. The result of fecal test revealed that Haemonchus (36%) is the most prevalent parasitic infestation followed by Trichuris (34%), Paramphistomum(16%), Cestodes(4%) and Ascaris (6 %). This is the pattern of flow of faecal sample in VL Biratnagar.

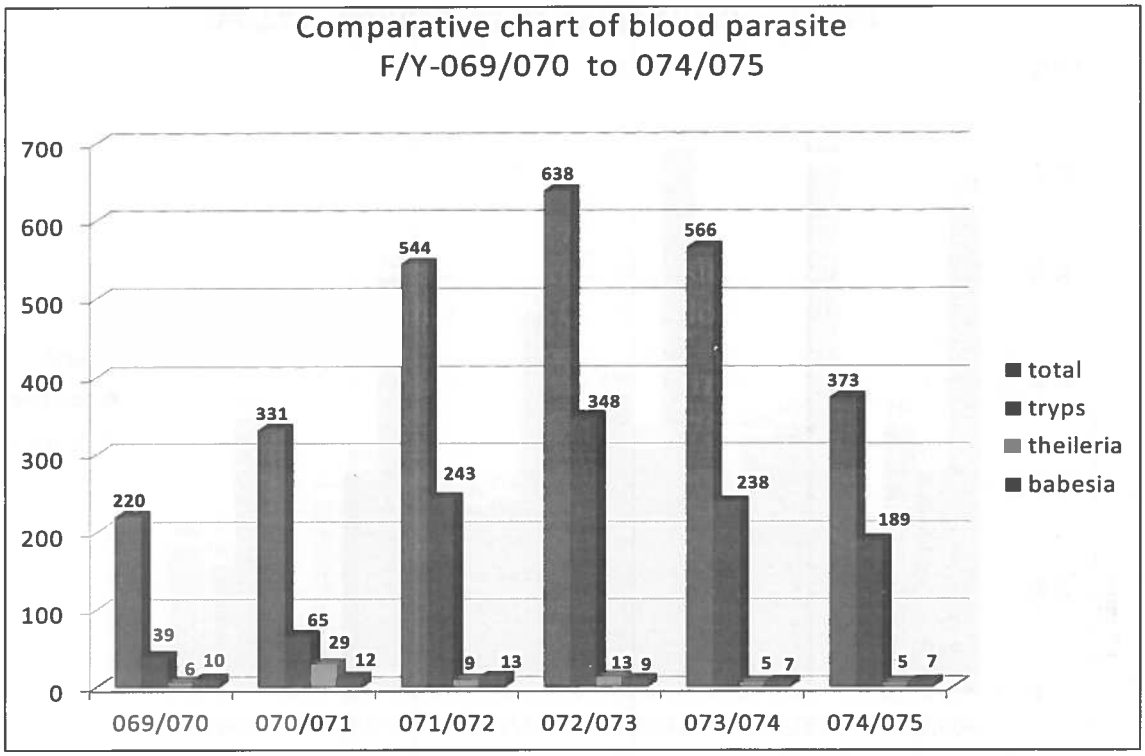


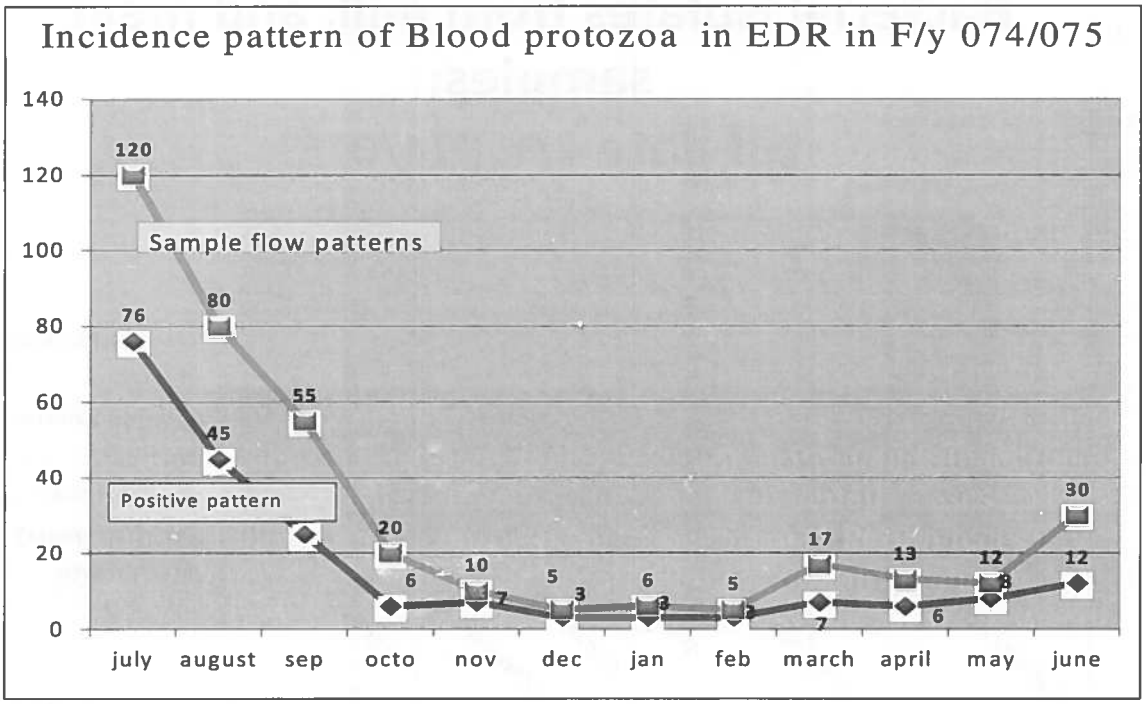
Haematological examination:

In haematological examination 22 hematological parameters like TLC, TEC, DLC, PCV and Hb tests were done in this lab. Hb estimation was done by Sahli's haemoglobinometer, PCV by microhaematocrit method, total count of RBC , WBC by haemocytometer and also done by Hematoanalyzer. For DLC, blood samples were stained with Giemsa.



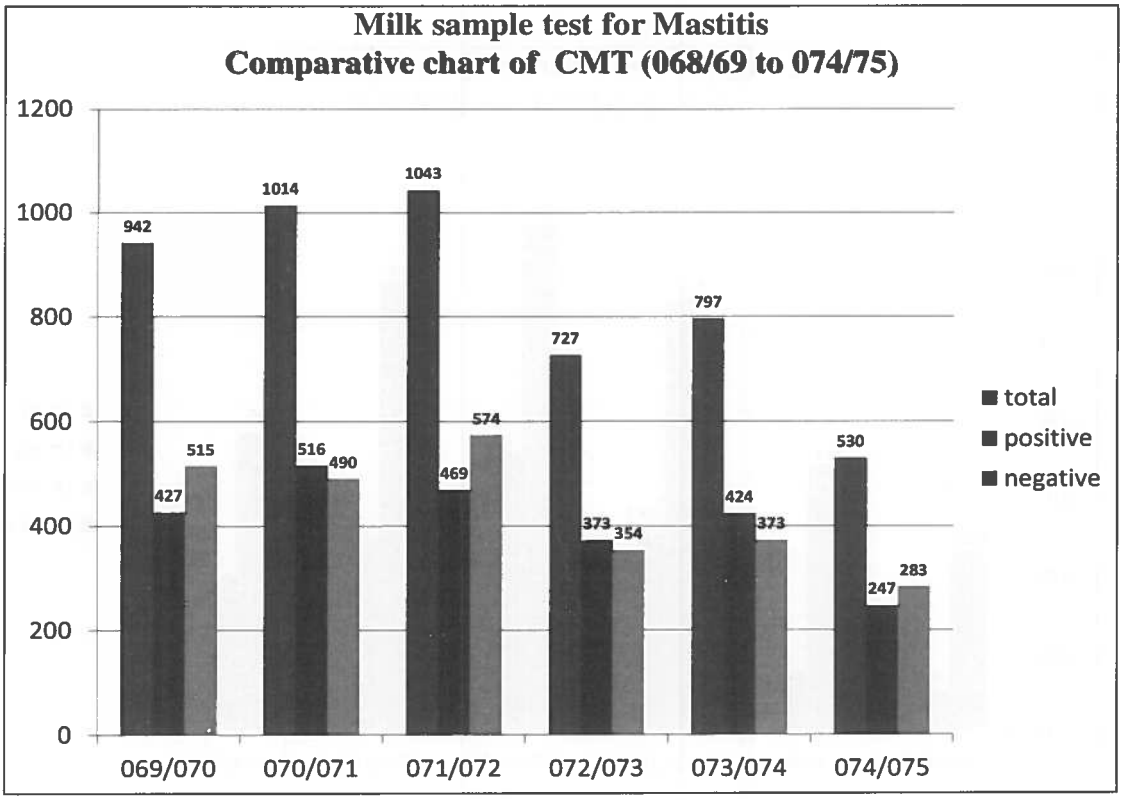
Blood samples received from different districts of eastern region were examined for blood parasites. A total number of 373 samples were examined for blood parasites. Out of them, 201 samples were positive in which Trypanosoma was dominant having 189 (94%) positive samples. Rest 5 samples were of theileriosis & 7 positive samples were of babesiosis brought here in this fiscal year. This is the pattern of blood samples flow and diagnose rate of blood parasites in VL Biratnagar.

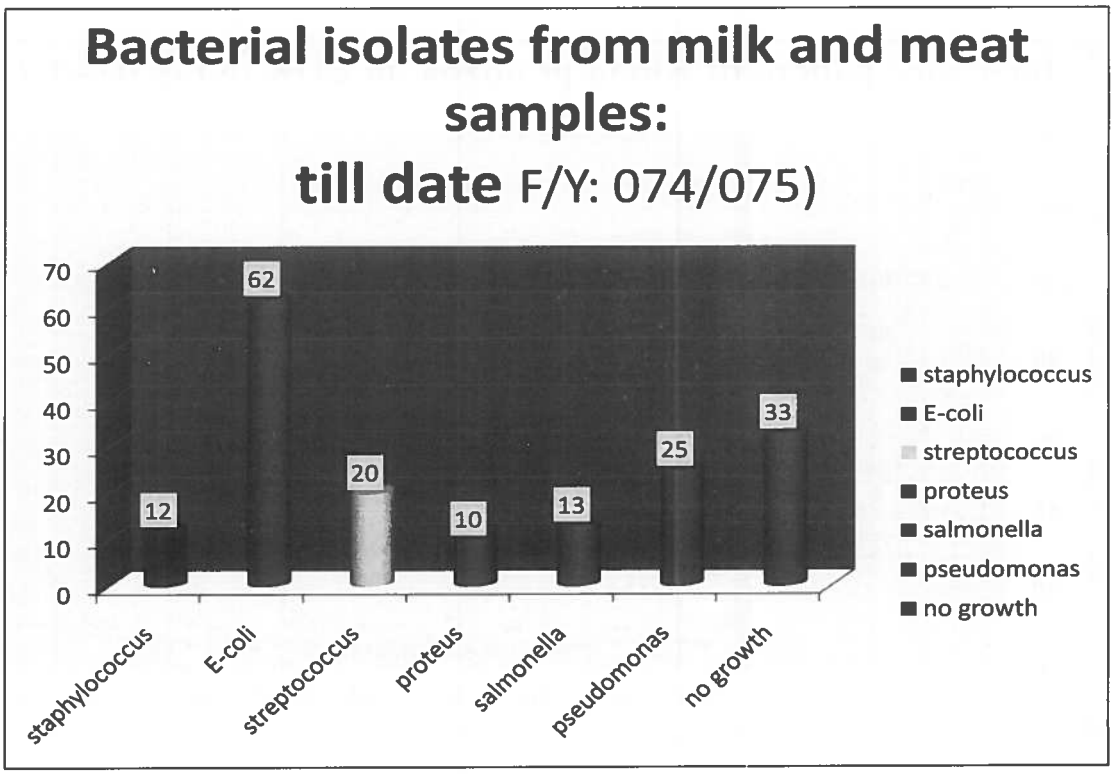




Microbiological examination:

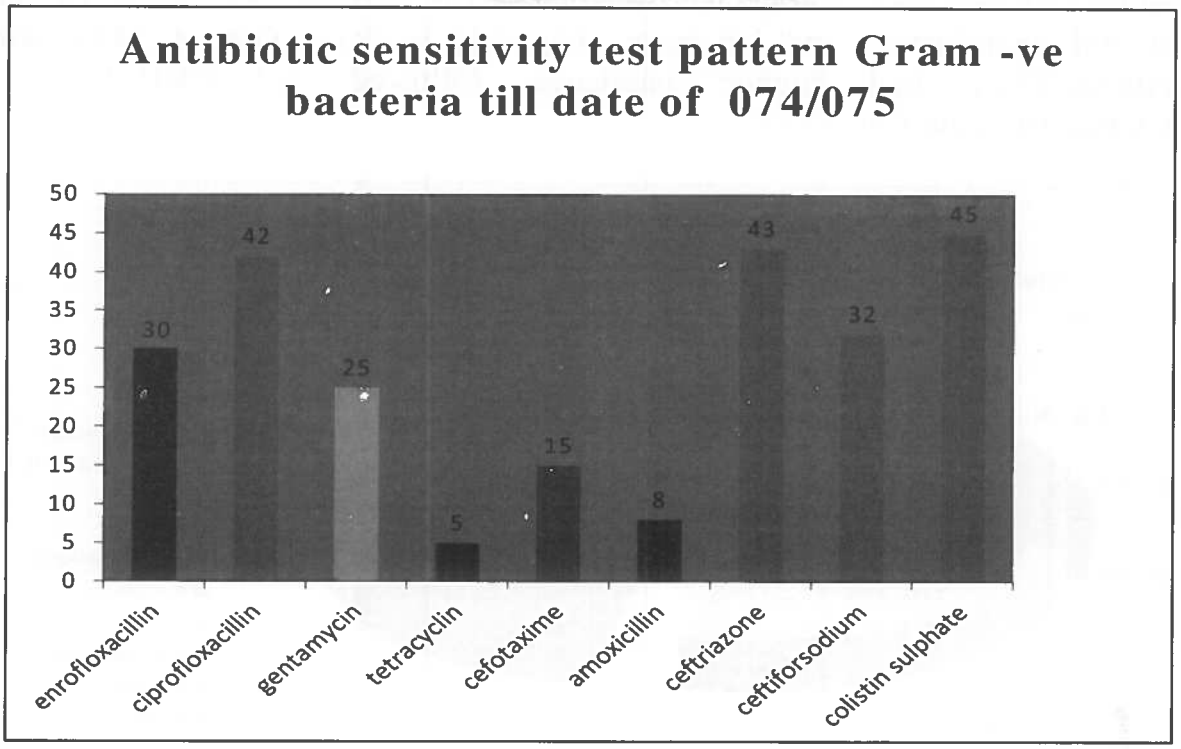
Altogether 530 milk samples were registered in this laboratory in the fiscal year 2074/075. Out of them 247 samples were positive for CMT and MWT tests. The most prevalent bacteria isolated from these positive milk samples were *E. coli, staphylococcus, Streptococcus, Klebsiella, Pseudomonas, Enterobacter etc.*



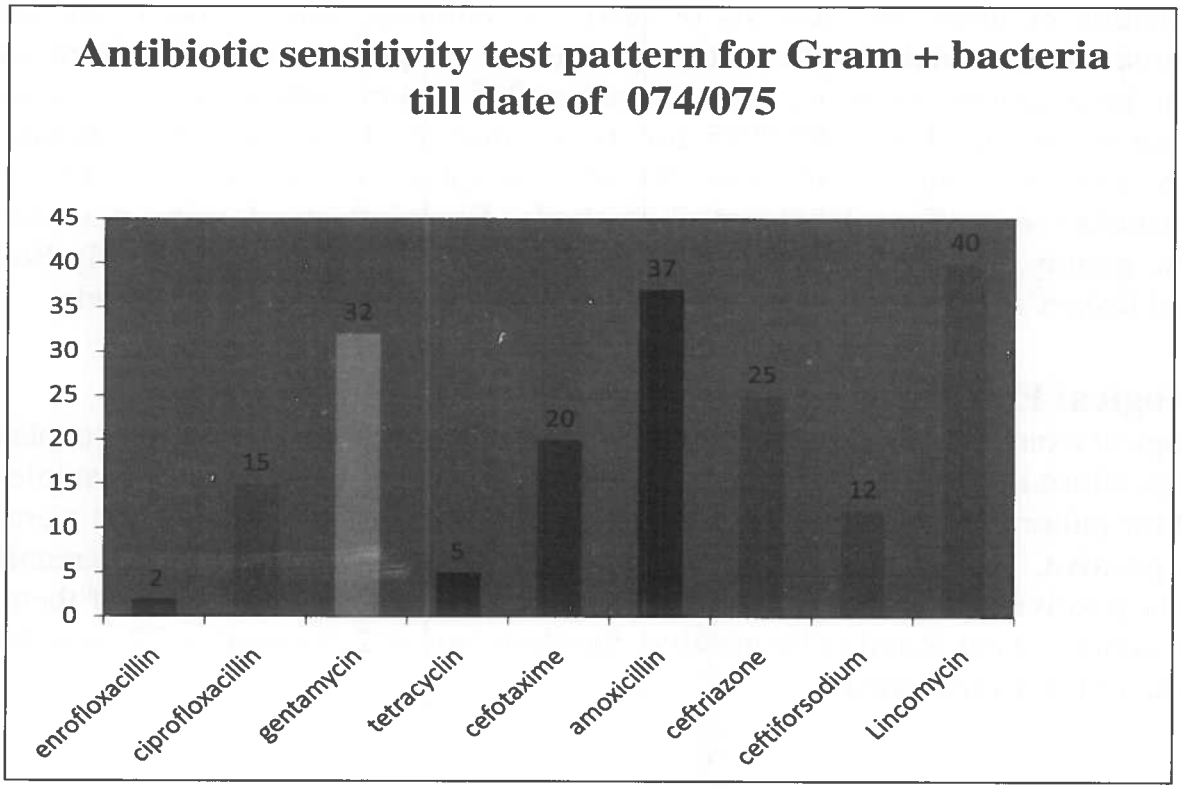


Antibiotic sensitivity Test:

For Gram negative bacteria colistin, ceftriazone, ceftiforsodium and ciprofloxacin were proved to be the most sensitive antibiotics.

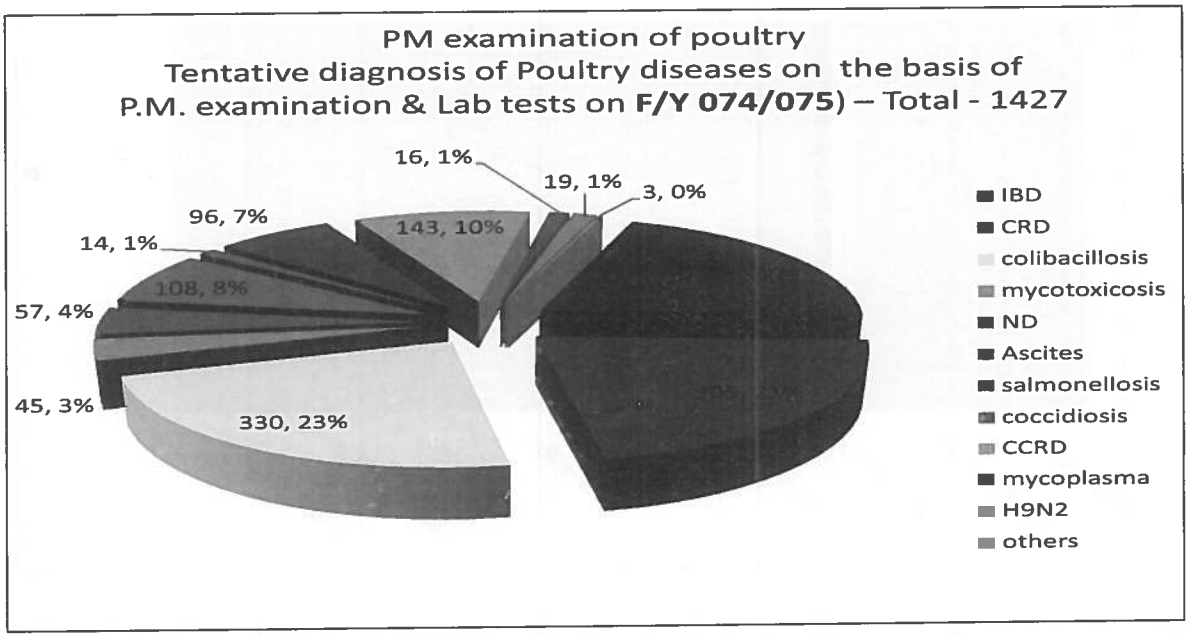


Whereas for Gram positive bacteria Lincomycin, amoxicillin and gentamycin were the most sensitive as compare to others.



Pathological Examination:-

Mostly post-mortem 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 1427 dead birds were received to the lab. On the basis of PM examination and lab tests, diagnosis is done. Out of 1427 samples, collibacillosis(23%) had higher incidence followed by CRD(21%) ,IBD (20%),CCRD(10%)and Cocci (7%) .

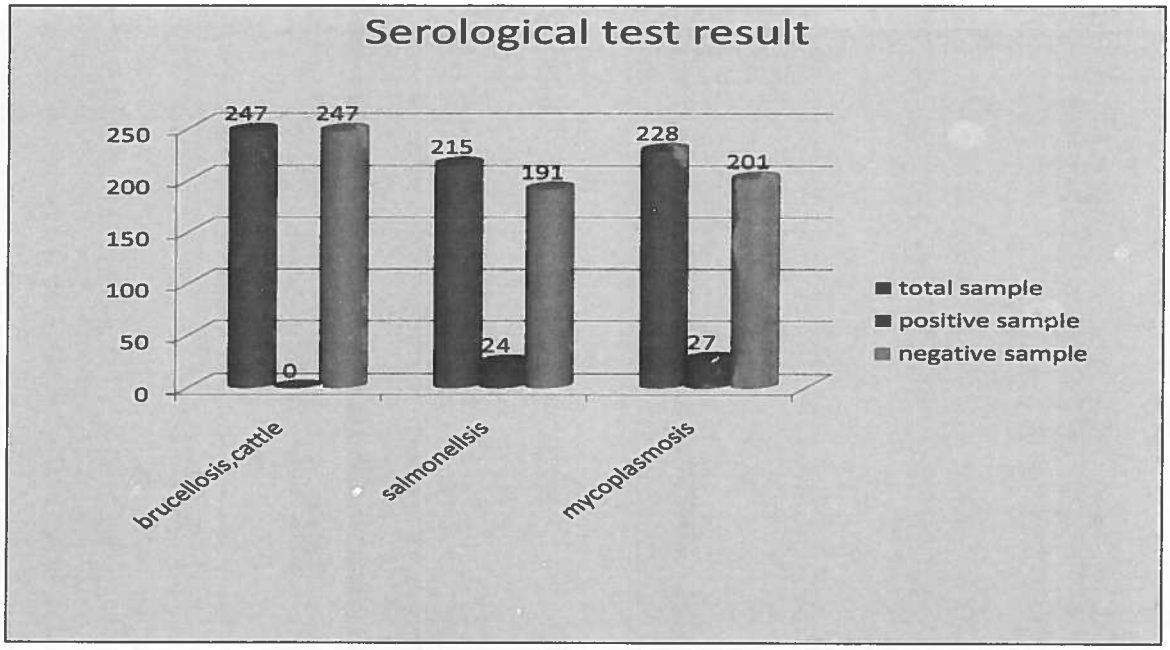


Biochemical examination:

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. Altogether 285 serum samples were collected and analyzed in the fiscal year 074/075 for the estimation of Calcium, Phosphorus, Total protein, glucose, using specific kits. 90 urine samples were tested by using dipsticks (mult-isticks) 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 three diseases (salmonellosis, mycoplasmosis and brucellosis) in this laboratory. In fiscal year 2074/075 altogether 215 samples were tested for pullorum disease by Plate agglutination method (PAT). 24 samples were found to be positive. Similarly, Rose Bengal plate test (RBPT) was done for screening the brucella positive animals. Total 247 samples were tested for brucella, out of them, none of the samples were found to be positive. Similarly out of 228 samples, 27 were found to be positive for mycoplasma.



The carrier stage of the FMD,CSF,AI and Glanders are diagnosed by the NSP ELISA test.

Results of NSP Test of CSF

S.No.	Dist	Total sample	Positive	Negetive	Remarks
1	Sunsari	90	30	60	
2	Udayapur	52	2	50	
3	Jhapa	47	5	42	
4	Dhankuta	95	8	87	
5	Morang	115	17	98	
6	Saptari	110	25	85	

Results of NSP ELISA Test of FMD

S.No.	Dist	Total sample	Positive	Negetive	Remarks
1	Siunsari	101	30	71	
2	Terrathum	52	0	50	
3	Okhaldhunga	55	12	55	
4	Taplejung	73	0	73	
5	Morang, rvl	65	17	48	
6	Saptari, rvl	55	15	40	
7	Jhapa, rvl	59	19	40	
8	Siraha	50	12	38	

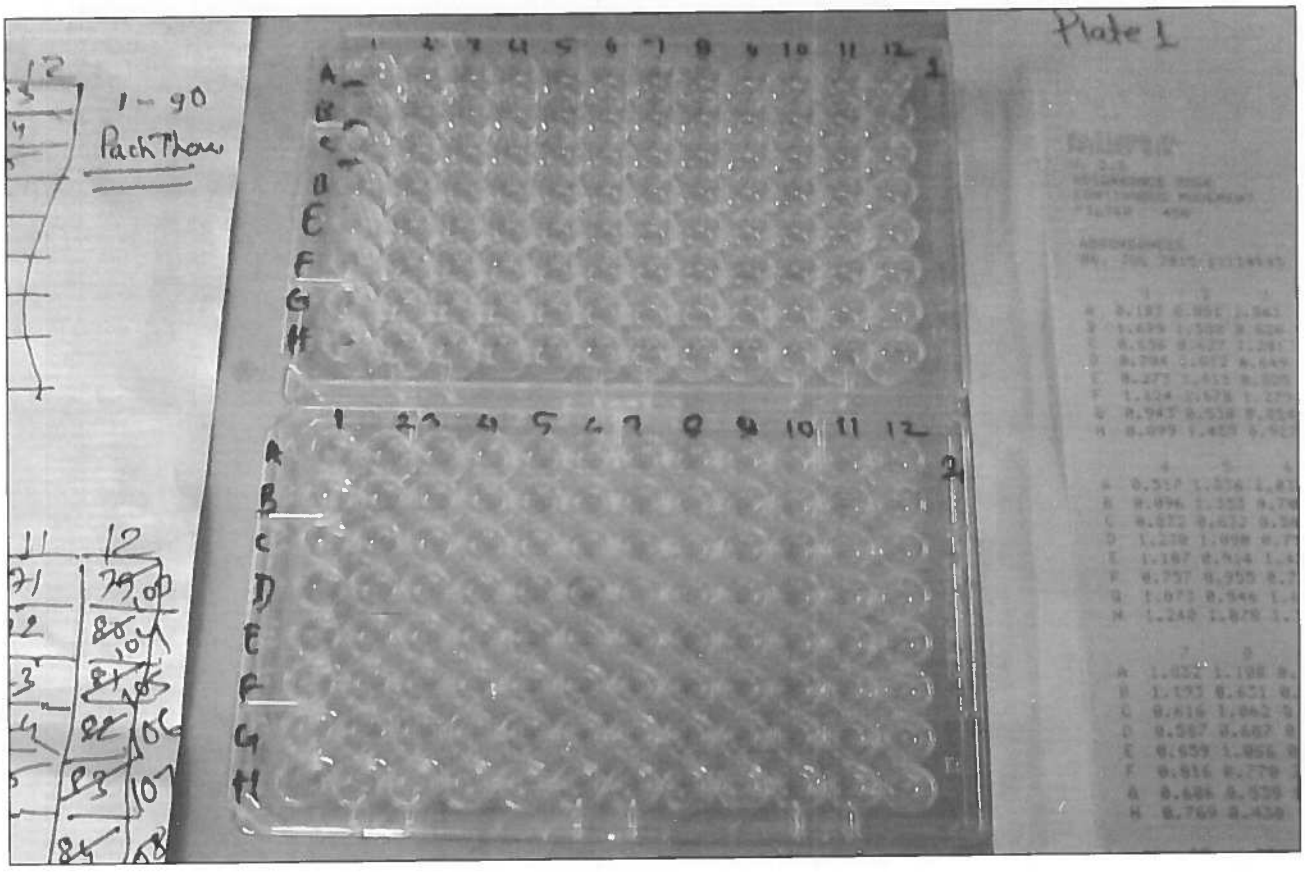
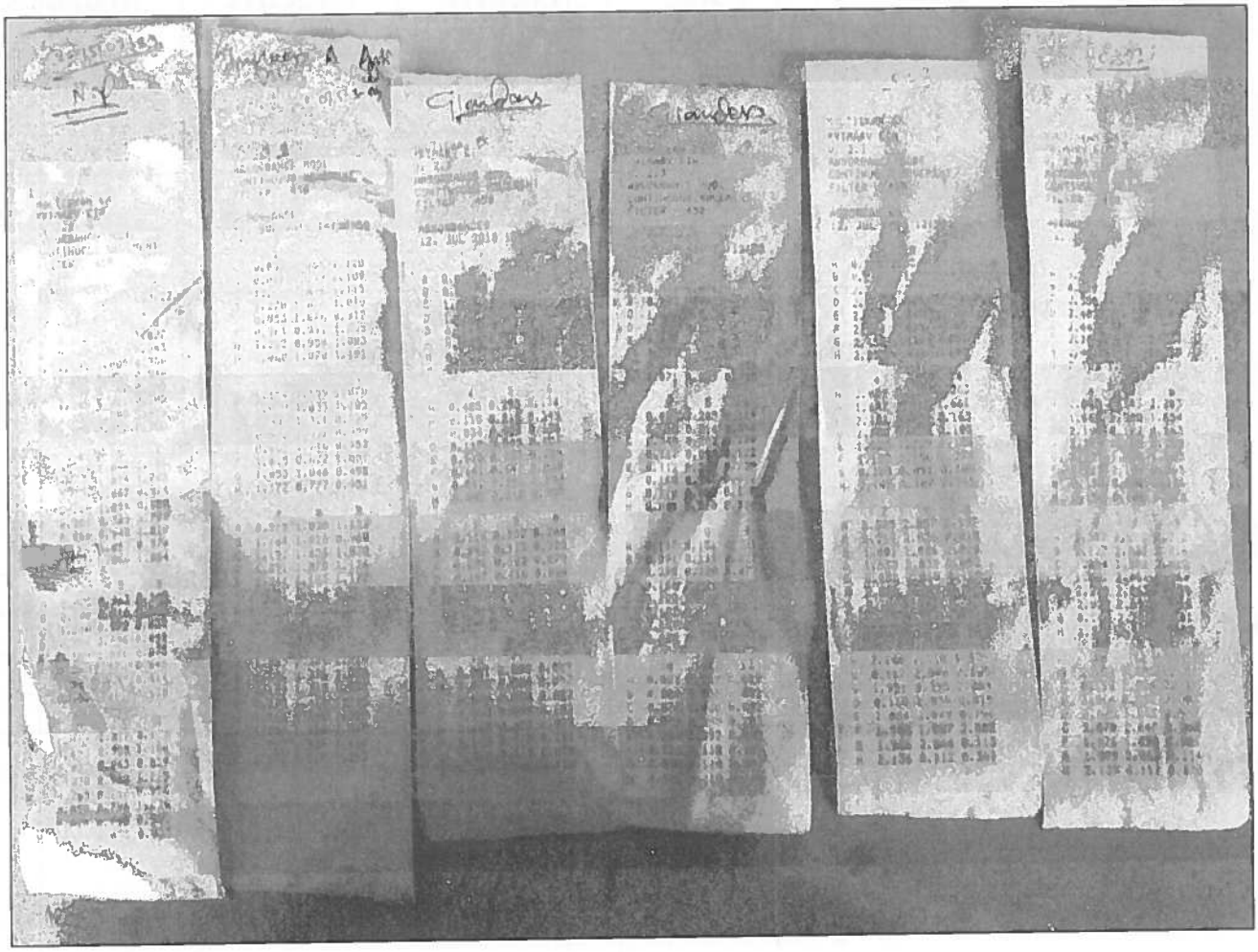


Plate 1
1 - 90
Pack Thaw



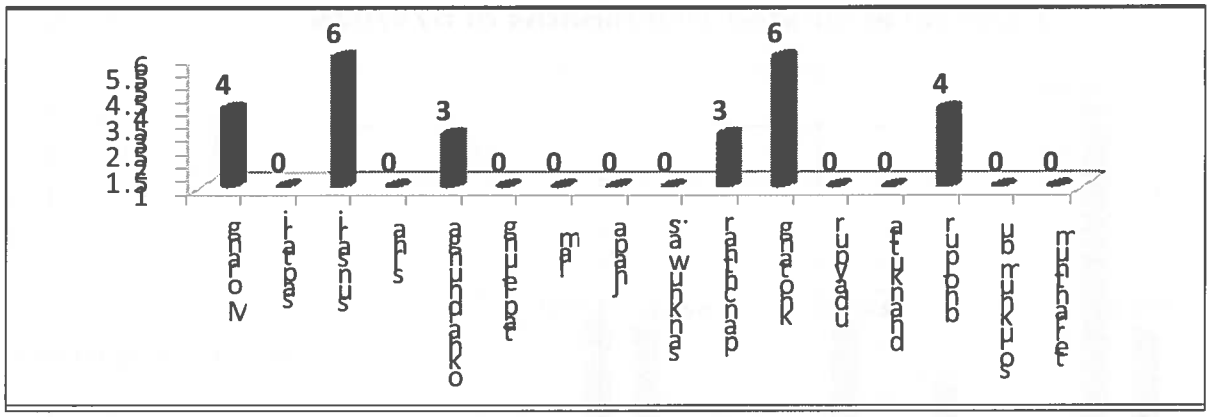
Status of Emergency doses of PPR vaccines stored in VI Brt

S.No	Districts	PPR vaccines distributed
1	Sunsari	14000 doses
2	Saptari	9800 doses
3	Morang	9000 doses
4	Ilam	3000 doses
5	Siraha	900 doses
6	Udayapur	1500 deses
Total PPR vaccines Distributed		38200 doses
In 074/04/075 Total vaccines a available in VL Biratnagar		44600 doses
Remaining PPR vaccines in starts of 075.076 at VL Now		6400 doses

Under National Vacination Programme Vaccines distributed by DAH (074/075)

S.N.	Districts	HS/BQ	PPR	FMD	ND	CSF
1	Morang	20000 dose	130000 doses	190000 dese		25000
2	Sunsari	20000	130000	150000		25000
3	Jhapa	25000	140000	200000		25000
4	Dhankuta		80000	30000	25000	15000
5	Taplejung		60000		25000	15000
6	Panchther		70000	30000	25000	20000
7	Ilam		80000	40000		
8	Terathum		50000		25000	
9	Sankhuwasabha		60000		20000	15000
10	Bhojpur		70000			15000
11	Okhaldhunga		60000		25000	15000
12	Khotang		70000		25000	15000
13	Udayapur		120000	70000	25000	
14	Saptari	20000	115000	140000		
15	Siraha	20000	120000	150000		
16	Solukhumbu		45000	45000	20000	
	Total	105000 doses	1400000 doses	1045000 doses	215000 doses	185000 doses

Information about Reporting of Monthly Epidemiological Report from districts (July 2017 - Feb 2018)



DLS should manage for timely reporting of monthly Epidemiological Reports from Local Authority

आ.व. २०७४/०७५ को आर्थिक विवरण बजेट शीर्षक नं. ३१२१२५३/४

विवरण	रु.
वार्षिक बजेट	२,२३,३४,०००।-
पूंजिगत बजेट	७८,००,०००।-
चालु बजेट	१,४५,३४,०००।-
पूंजिगत निकासा	५४,७१,०४०।०४
चालु निकासा	१,४०,१८,००१।०१
पूंजिगत खर्च	५४,७१,०४०।०४
चालु खर्च	१,४०,१८,००१।०१
हालसम्मको जम्मा बेरुजू : (०६५/०६६)	१२,८५३।-
हालसम्मको चालु पूंजिगत खर्च	१,९४,८९,०४१।०५

CENTRAL VETERINARY LABORATORY
VETERINARY LABORATORY, BIRATNAGAR
Six monthly Laboratory Investigation Report, Jul 2018-Dec 2018

YEAR:2018

Duration:-July2018-Dec 2018

S.N.	Disease	Animal Species	No. of Samples Received	District	No. of Samples Tested	Diagnostic Test Method Used	Test Results		Remarks
							Positive	Negative	
1	Internal Parasitism(EPG test)	Goat	63	morang	63	Modified Mc. Master Method	40	23	EPG-100-300,Param-5,Haemonchus16, Trichuris-15 and others-4
2	Blood Protozoan diseases	C,B,D,G	321	Sapt.,Morg.,Sunsa.,Jhapa ,Siraha and Udaypur	321	Blood smear method	267	54	Theileria-5,Babesia-7 and Tryps-255
3	Anaemia	C,B,D,G	321	Sapt.,Morg.,Sunsa.,Jhapa ,Siraha and Udaypur	321	Acid Haematin,Wintrobe,centrifug.	120	201	Hb:-5-9 gram %
		C,B,D,G	180	Sapt.,Morg.,Sunsa.,Jhapa ,Siraha and Udaypur	180	Acid Haematin,Wintrobe,centrifug.	105	216	PCV:-10-20
4	Mastitis	cattle/buffalo	411	Sirha,Sapt,Sunsari,mor,Jhapa	411	CMT	204	207	
5	Drug sesisityvity Test of milk and other sample	cattle/buffalo/poultry	98	Sirha,Sapt,Sunsari,mor,Jhapa	98	AST	91	7	Ceftriazone,Cipro,chloramphenical,Cefaperzone and Genta found sensitive respectively

S.N.	Disease	Animal Species	No. of Samples Received	District	No. of Samples Tested	Diagnostic Test Method Used	Test Results		Remarks
							Positive	Negative	
6	Bacterial isolates	cattle/buffalo/poultry	84	Sirha,Sapt,Sunsari,mor,Jhapa	84	Bacterial culture & Isolation	84	4	E.coli,Pseudomonas,streptococcus,staphylococcus, proteus etc
7	Poultry PostMortem	poultry	584	Sirha,Sapt,Sunsari,mor,Jhapa,dhankutta,India and udaypur	584	PM	577	7	CRD,Colibacillosis,IBD,CCRD,Ascites,ND,Nematodiasis etc
8	Salmonellosis	poultry	143	Morang,Sunsari and jhapa	143	Plate agglutination test	11	132	
9	Mycoplasmosis	poultry	140	Morang,Sunsari and jhapa	140	Plate agglutination test	12	18	
10	Brucellosis	C,B,G	60	Morang & Jhapa	60	RBPT	0	60	
11	PPR	Goat	23	Sunsari,bhojpur	23	PPR Pensite Test	4	19	
12	Rabies	Dog,Goat,cattle	23	Morang	23	Anigen Rapid test	2	21	
13	Bird Flu	Layers and wild Birds	141	Siraha,Sunsari/Morang	141	Rapid test and PCR by CVI	10	141	H9N2 strain found in Morang
14	skin scrapping test	goat,dog and cattle	19	morang and sunsari	17	KOH digestion and microscopic examination	5	12	Sarcoptic in cattle and goat demodectic in dog

Samples send to CVL for Confirmation and results

1	PPR seromonitoring serum	Goat	1696	All 16 dists. Of EDR	1696	SP ELISA	
2	FMD seromonitoring serum	C,B and Goat	426	Dhankuta, Ilam, Morang, Jhapa, Okhaldhunga.	426	SP ELISA	
3	Swinefever seromonitoring Serum	Pig	110	Jhapa, Morang, Sunasari, Dhankuta	110	SP ELISA	
4	RD seromonitoring Serum	poultry	100	Okhaldhunga, Solukhumbu, Dhankuta, Ilam, Sankhuwasava	100	SP ELISA	
5	Mouth Lesion	C & B	19	Jhapa, Okhaldhunga, Udaypur and Sunsari	19	Serotyping of FMD Virus	7

Abbreviations: District Name… eg. Mo-Morang
Animal Species: **C**-Cattle, **B**-Buffalo, **D**-Dog, **Du**-Duck, **G**-Goat, **S**-Sheep, **Sw**-Swine, **P**-Poultry, **Pi**-Pigeon,
Test method used: **HA**-Haemagglutination Test, HI-Haemagglutination Inhibition Test, PAT-Plate Agglutination Test, MIT-Mice Inoculation Test etc.

C. VETERINARY LABORATORY, JANAKPUR

1. Introduction

Veterinary Laboratory of the central development region is situated in Janakpur. It provide diagnostic services to all the 19 districts of central development region of Nepal. Various disease diagnosed at the laboratory having several units i.e. pathology, Parasitology, Microbiology, Haematology, Biochemistry, Sterlization. Serological & Histopathological Laboratory test result are obtained by dispatching the relevant specimens to CVL, as these diagnostic facilities are not available in VL janakpur at present.

The Working areas of this VL is all district of central region but mainly focused on surrounding district like Dhanusha, Mohottori, 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, Mohottary, Sarlahi, Bara, Parsa, Rauthat & Chitwan are under this terai region. Through traditional system of livestock farming in followed in this region poultry, dairy & piggery are being commercialized especially in east-west high way and its vicinity.

1. 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
- Zoonotic Disease Investigation & Control
- Epidemiological Report Recording & Risk Analysis
- Vaccine Bank Storage & Distribution

Staff of VL Janakpur
(At the end of F/Y 2074/075)

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. Laxmi Narayan Das	V.O.	Micribiology, Postmortem,Epidemiology
4.	Mr. Ramwatar Tibari	J.T.	Parasitology
5.	Mr. Ramratan Rai Yadav	J.T.	Haematology & Serology Administration, Store
6.	Mr. Anirudh Sah	J.T.	Microbiology, Postmotem, Help desk
7.	Mr. Umesh Prasad Sah	J.T.	Sterilization
8.	Mr. Jagdish Sah	Accountant	Financial
9.	Mrs. Anita Raut	Na. Su.	Administration
10.	Mr. Kula Nand Jha	Driver	Driving
11.	Mr. Surndra Mishra	Office assistant	Office guard
12.	Mr. Dinesh Datta	Office assistant	Office Attendant
13.	Mr. Bhakti Nath Jha	Computer Operator	Computer

3. Annual Progress Report (2074/075)

S.N.	Programmers	Unit	Annual Target	Annual Progress	Annual Weightage	Progress %
A	**Pujigat Karch**					
8.3.1.27	Purchasing of furniture set	Nos.	1	1	1.37	100%
8.4.4.2	Purchasing of Motor cycle	Nos.	2	2	2.28	100%
8.5.1.324	Purchasing of Laptop	Nos.	2	2	0.68	100%
8.5.1.325	Purchasing of Fax & Photocopy machine	Nos.	2	2	0.85	100%
8.5.1.392	Purchasing of stabilizer 12 Kb	Nos	1	1	0.42	100%
8.5.1.393	Purchasing of Multimedia projector with computer set	Nos	1	1	0.85	100%
8.5.1.394	Purchasing of digital camera	Nos	1	1	0.42	100%
8.6.42.1911	Construction of Sheep shed	Nos	1	1	0.46	100%
8.6.42.1920	Construction of compound wall		100	100	6.83	100%
8.6.42.1938	Construction of ware house	Nos	100	100	22.76	100%
B	**Chalu Karch**					
2.15.1.823	Veterinary Laboratory Training (Technician level)	Times	2	2	3.87	100%
2.15.2.335	Veterinary investigation	Times	2	2	0.46	100%

S.N.	Programmers	Unit	Annual Target	Annual Progress	Annual Weightage	Progress %
	workshop (Regional level)					
2.15.2.336	Sample collection & dispensing workshop (District Level)	Times	3	3	0.56	100%
2.15.19.206	Parasite E.P.G. Counts	Nos.	300	302	0.27	100%
2.15.19.207	Blood protozoa Identification	Nos.	300	303	0.27	100%
2.15.19.208	Skin Scarping	Nos.	90	115	0.20	100%
2.15.19.209	Clinical hematological Examination	Nos.	200	200	0.27	100%
2.15.19.210	Biochemical Examination(Calcium, Phosphorus, Portion & Glucose Estamenation)	Nos.	200	210	0.36	100%
2.15.19.211	Urine Test	Nos.	100	163	0.20	100%
2.15.19.212	Postmortem Examination	Nos.	300	477	0.68	100%
2.15.19.213	Bacterial Culture & Identification	Nos.	100	120	0.32	100%
2.15.19.214	Fungus Culture & Identification	Nos	50	71	0.14	100%
2.15.19.215	Viral Disease Examination	Nos	200	203	0.41	100%
2.15.19.216	PPR Pen site Examination	Times	3	3	0.27	100 %
2.15.19.217	Swine fever Pen side Examination	Times	3	3	0.41	100%
2.15.19.218	Mycoplasma Identification	Nos.	150	152	0.34	100%
2.15.19.220	FMD NSP ELISA Examination	Times	1	1	0.91	100%
2.15.19.221	Sample Collection & dispatch to CVL	Nos.	400	400	0.32	100%
2.15.19.222	Investigation of Sub Clinical Mastitis Test & repotting	Times	3	3	0.55	100 %
2.15.19.223	Regional Emergency district investigation team management	Times	3	3	0.55	100 %
2.15.19.224	Investigation of Epidemic Disease	Times	3	3	0.20	100 %
2.15.19.225	Veterinary disease outbreak investigation	Times	3	3	0.55	100%
2.15.19.226	Sample Collection & Examination in Infertility Treatment Camp	Times	2	2	0.18	100%
2.15.19.227	Avian influenza Rapid test	Nos	45	55	0.68	100%
2.15.19.228	Brucella examination	Nos.	150	153	0.34	100%
2.15.19.229	Rabies examination	Nos.	30	9	0.55	30%
2.15.19.233	Publication of Half yearly Epidemiological Bulletin	Times	2	2	0.09	100 %

S.N.	Programmers	Unit	Annual Target	Annual Progress	Annual Weightage	Progress %
2.15.19.234	Publication of Yearly Epidemiological Bulletin	Times	1	1	0.07	100 %
2.15.19.235	Preparation of Records for yearly publication	Times	1	2	0.07	100 %
2.15.19.236	Half yearly Veterinary Investigation report sand to VEC		2	2	0.05	100 %
2.15.19.237	Anti-Rabies Vaccination for staff	Person	12	12	0.16	100%
2.15.19.238	Health check for Laboratory staff	Person	12	12	0.16	100%
2.15.19.239	Regional Level Vaccine bank management of Rabies, FMD & PPR	Times	3	3	0.11	100 %
2.15.19.240	Seromonitoring for PPR, FMD, Swinfevar & NDV sample collection & dispatch	Dist.	10	10	0.80	100%
2.15.19.329	Laboratory Web Site Develop	Times	1	1	0.23	100%
2.15.19.330	HA/HI Examination (NDV & AIV)	Times	3	3	0.68	100 %
2.18.1.18	Investigation of Epidemic Disease (Purchase of Magician)	Times	3	3	0.21	100 %
2.18.1.19	Seromonitoring for PPR, FMD, Swinfevar & NDV (Purchase of Magician)	Dist.	10	10	0.27	100%
2.18.1.21	Regional Emergency district investigation team management (Purchase of Magician)	Times	3	3	0.18	100 %
2.19.1.101	Mona tearing of district Level Laboratory	Times	10	10	0.68	100 %
2.19.2.100	Sample Collection & dispatch to CVL (TADA)	Nos.	400	400	0.27	100%
2.19.2.101	Investigation of Sub Clinical Mastitis Test (TADA)	Times	3	3	0.27	100 %
2.19.2.102	Regional Emergency district investigation team management (TADA)	Times	6	6	0.55	100 %
2.19.2.103	Investigation of Epidemic Disease (TADA)	Times	6	6	0.55	100 %
2.19.2.104	Veterinary disease outbreak	Times	6	6	0.55	100%

S.N.	Programmers	Unit	Annual Target	Annual Progress	Annual Weightage	Progress %
	investigation (TADA)					
2.19.2.105	Sample Collection & Examination in Infertility Treatment Camp (TADA)	Times	2	2	0.36	100%
2.19.2.106	Sample collection & dispensing workshop (District Level) (TADA)	Times	3	3	0.34	100%
2.19.2.108	Planning, Budget & Progress report Workshop for TADA	Times	3	3	0.34	100%
2.19.2.109	Sero-monitoring for PPR, FMD, Swinfevar & NDV (TADA)	Dist.	10	10	1.37	100%
2.19.2.163	Monitoring, Upgrading & Technique hand over to basic Laboratory (TADA)	Times	6	6	0.82	100%
2.19.2.224	Inter Laboratory Visit	Times	5	5	0.91	100%
2.20.3.6	Delay Expense on tea & Coffee and Emergency need		12	12	0.34	100%

4. Laboratory Service :

The routine Laboratory works of VL 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 identify the bacteria responsible for the 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.

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, Mahottary, Sarlahi, Sinduli, Rauthat and Bara, field area during surveillance and investigation programme. For the gastro intestinal parasites, Mc'master technique is followed to quantify the eggs per gram (EPG) in feces.

In the F/Y 2074/75 total 302 fecal samples from different species of animals were received & examined. Among these samples 231 samples (76.49%) were positive result and 71 samples (23.50%) showed negative results. The results of fecal test revealed that Liver fluke (47.61%), *Paramphistomum* (40.69%), *Strongylus* (5.19),*Trichuris* (4.76%), Mixed & Other parastites(2.16%).

Fecal sample examined and types of parasites FY 2074/75

Month	No. of Sample	Fasciola	Param Phistomum	Stronggles	Trichuris	Other	-VE	+VE
Srawan	23	7	8	2	-	-	6	17
Bhadra	26	7	8	1	2	1	8	18
Asoj	37	14	11	2	-	-	10	27
Kartik	21	7	9	-	-	-	5	16
Manshir	25	8	6	1	2	2	6	19
Poush	27	9	7	2	-	-	9	18
Magh	26	11	7	-	3	-	5	21
Falgun	25	6	9	0	2	-	8	17
Chaitra	28	13	6	2	-	2	5	23
Baisakh	23	8	9	1	2		3	20
Jestha	17	7	6	-	-	-	4	13
Asadh	24	13	8	1	-	-	2	22
Total	302	110	94	12	11	5	71	231

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 303 Blood sample were examined for different blood parameters as well as for blood parasites. Among them 282 samples were found negative for any blood parasites & rest 21 were found positive for different blood parasites.

Details of blood sample examination FY 2074/75

Month	No. of Sample	Anaplasma	Babesia	Theileria	Tryps	Other	-Ve	+Ve
Srawan	21	2	-	1	-	-	18	3
Bhadra	19	-	-	-	-	-	19	0
Asoj	22	-	2	2	-	-	18	4
Kartik	24	1	-	-	-	-	23	1
Manshir	28	-	3	-	-	-	25	3
Poush	27	-	-	3	-	-	24	3
Magh	26	-	-	-	-	-	26	0
Falgun	21	1	2	-	-	-	18	3
Chaitra	34	-	-	-	-	-	34	0
Baisakh	9	-	-	-	-	-	9	0
Jestha	29	-	1	-	-	-	28	1
Asadh	43	1	-	2		-	40	3
Total	303	24	29	10	15	3	282	21

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, Sirha and Saptari district. A total 255 cases of post mortem examination were presented during the F/Y 2074/075 all the case received were birds. One carcass of goat and other wild pig were examined were found dead by physical attempt. No cases of other species of animals were received. The status of poultry disease in the area is shown in Table below.

Trend of disease occurrence in poultry FY 2074/75

S.N.	Tentative Diagnosis	Total Cases	
		Number	Percent (%)
1.	Colibacillosis	82	17.19
2.	Ascites	73	15.30
3.	CRD	52	10.90
4.	Coccidiosis	54	11.32
5.	Infectious Bursal Disease	26	5.45
6.	Salmonellosis	36	7.54

S.N.	Tentative Diagnosis	Total Cases	
		Number	Percent (%)
7.	Mycotoxicosis	103	21.59
8.	New Castle Disease	28	5.87
9.	Litchy Heart Disease	2	0.41
10.	Ascariasis	11	2.30
11.	Avian Influenza	2	0.41
12.	Others	8	1.67
	Total	477	100

Microbiological Examination:

For the bacterial identification of cow & buffalo milk total of 339 Cattle & Buffalo 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. coli* etc.

S.N.	District	Tested No. of Sample	Resulat
1.	Dhanusha	136	*Staplylococcus, Streptococcus & E. coli*
2.	Mohattari	127	*Staplylococcus, Streptococcus & E. coli*
3.	Sarlahi	35	*Staplylococcus, Streptococcus & E. coli*
4.	Rauthat	21	*Staplylococcus,*
5.	Bara	13	*Staplylococcus, Streptococcus & E. coli*
6.	Parsa	7	*Staplylococcus, Streptococcus & E. coli*

Antibiotic Sensitivity Test Results :

Antibiotics Used	Percent Efficacy
Ciproflaxacin	H. Sensitive
Ampicloxacillin	H. Sensitive
Tetracyclin	H. Sensitive
Enrofloxacin	Sensitive
Gentamycin	Low Sensitive

Serological Examination:

Total of 137 samples were tested for mycoplasma among them 52 were found +ve & rest were found negative, for salmonella 78 samples were tested 36 were +ve & rest were found negative and for Brucella 314 sample were tested and all were 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 2074/075 :

Veterinary Laboratory, Janakpur is not well equipped with the modern equipments. Some of the samples has to be send to CVL for diagnosis of the disease & sometimes reconfirmation of the different types of diseases. FMD suspected samples were sent to FMD laboratory Budhanilkanth, Kathmandu. In total 338 Samples were dispatched to CVL as wel as 87 samples to FMD laboratory.

S.N.	Types of Samples	Number
1.	Poultry blood serum	106
2.	Tracheal swab	37
3.	Clocal swab	26
4.	Whole body carcass (Poultry)	6
5.	Blood serum for PPR	138
6.	Blood serum for FMD	87
	Total	404

National PPR,Swine fever & Ranikhet Programme

Sero-Surveillance

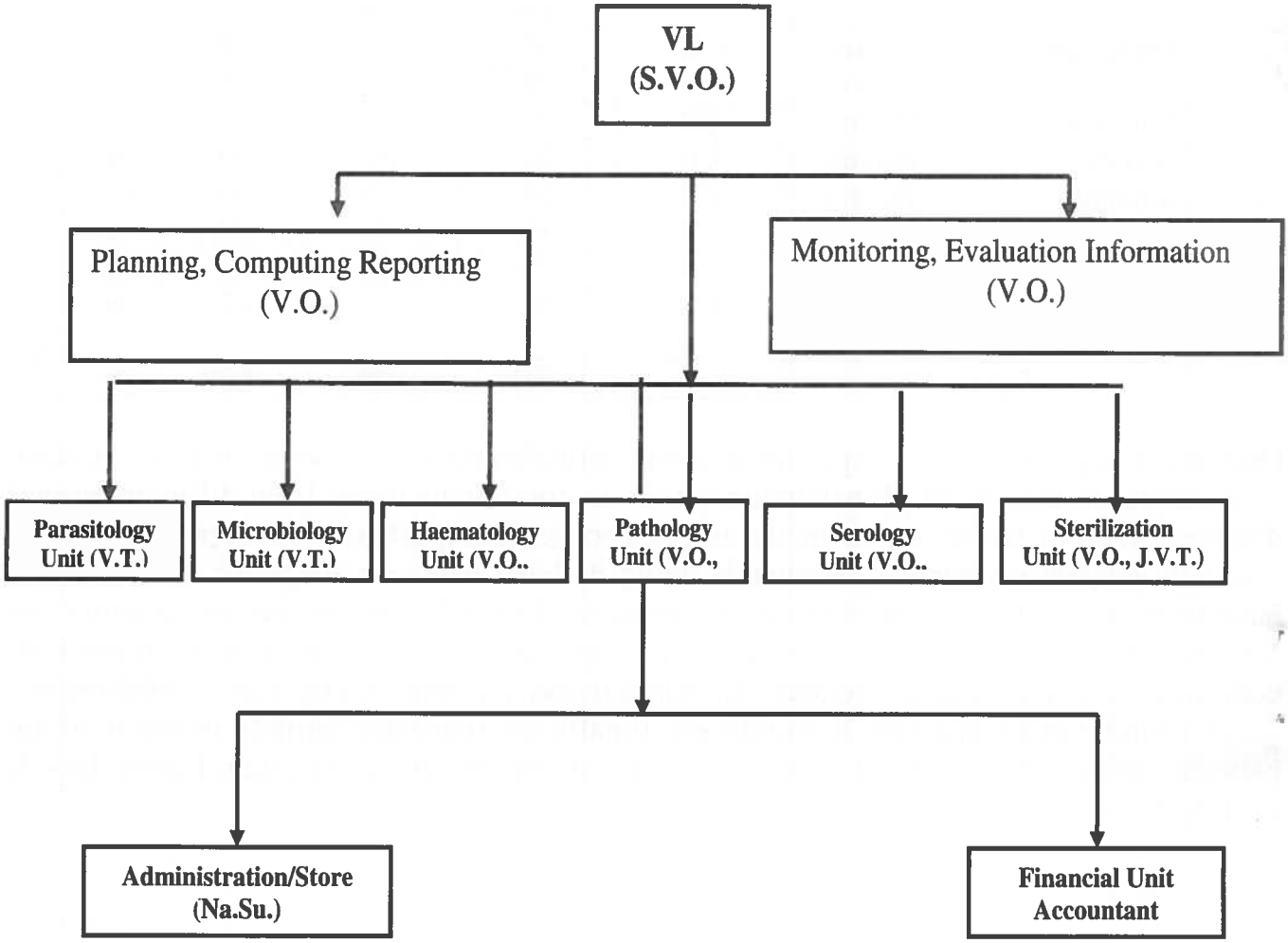
F/Y 2074/075

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.	Bara	Goat	PPR	200
4.	Parsa	Goat	PPR	200
5.	Chitwan	Goat	PPR	250
6.	Sindhuli	Pig	Swine fever	50
7.	Makwanpur	Pig	Swine fever	50
8.	Rauthat	Pig	Swine fever	50
9.	Bara	Pig	Swine fever	50
10.	Makwanpur	Poultry	Ranikhet	25
11.	Rauthat	Poultry	Ranikhet	25
	Total			1400

Bird flu Surveillance in Cental Development Region, VL Janakpur (F/Y 2074/075)

S.N.	District	Types of birds	Type of farming	Types of sample collected		Total	Test Result
				TS	CS		
1.	Dhanusha	Poultry,	CB	70	65	135	-ve
		Duck	CB	29	26	55	-ve
2.	Mahottari	Poultry	CB	25	30	55	-ve
3.	Sarlahi	Poultry	CB	23	22	45	-ve
4.	Sindhuli	Poultry	CB	24	20	44	-ve
5.	Bara	Poultry	CB	16	18	34	-ve
6.	Parsa	Poultry	CB	25	28	53	-ve
7.	Rauthat	Poultry, Duck	CB	92	87	179	-ve
	Total			304	296	600	-ve

One health approach is our opportunity in this globalization era however it is not so easy to maintain. In this era of globalization we are in continuous threat from different animal diseases, most of which are zoonotic and of economic importance. 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 & VL itself have a good opportunity to maintain hazard less & healthy Society.



Note -

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

D. VETERINARY LABORATORY POKHARA

1. Introduction :

Western Development Region (WDR) is situated between 82° 30' to 85° 15' east longitude and from 27° 15' to 29° 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.

Mission of the Veterinary Laboratory, Pokhara

The mission of the Veterinary Laboratory, Pokhara is to promote the health of livestock, poultry and companion animals and to insure safe animal products for the consumer by assisting District Livestock Development Offices, 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.

- ⇨ 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 Local Level, Veterinarians, and veterinary technicians.
- ⇨ To investigate the animal disease epidemics in the region and assist, advice and support Local Level 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 of the region.
- ⇨ To conduct and support the laboratory and animal health related training programs for the Para vets in the region.
- ⇨ To coordinate national

2 Objectives of Veterinary Laboratory

- ⇨ 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 Animal health directorate and Department of Livestock Services and training and continuing education of persons responsible for delivering animal health care services.

Major Laboratory Tests Facilities of Veterinary Laboratory, Pokhara

Veterinary Laboratory, Pokhara, located at Ramghat, the centre of Pokhara city, provides diversified veterinary Laboratory test facilities for the farmers, private veterinary practitioners and district Livestock Service Office of this 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 scrapping 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 perform identification of the Bacterial and fungal organisms using various biochemical tests, staining, morphology etc. The laboratory is capable of handling Mycobacterium and Mycoplasma species for culture. The microbiology unit also performs antibiotic susceptibility test and advice for the appropriate antibiotic for the treatments.

In virology the laboratory is capable for the isolation of NewCastle Disease and Infectious Bronchitis virus using egg inoculation method.

c. Pathology Unit:

Pathology unit mainly perform Post mortem examination on 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 about animals and birds mostly poultry birds.

It performs various types of cytological studies for the disease diagnosis.

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 Mycoplasma synovae 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 is providing routine hematological parameters of all the animals and Poultry.

3. Annual work Program and summary of achievements of Veterinary Laboratory, Pokhara (for fiscal year 2074/75 & Budget No: 3271014)

S.N.	Programmes and Activities	Annual Targets			Annual Progress	Weightage (%)
		Unit	Targets	Weightage (%)		
A						
8.2.8.76	Ware House Construction	Nos	1	24.07	1	24.07
8.2.8.77	Garage Constrution	Nos	1	2.47	1	2.47
8.2.8.78	Sheep Pen Construction	Nos	1	0.49	1	0.49
8.5.1.10	LapTop Purchase	No.	1	0.36	1	0.36
8.5.1.110	Computer Purchase with Printer	Set	3	1.24	3	1.24
B						
1	**Laboratory Services**					
1.1	Parasitological Examinations					
2.15.19.206	EPG Count	Nos	300	0.12	300	0.12
2.15.19.207	Blood Protozoa examination	Nos	180	0.18	235	0.18
2.15.19.208	Skin Scraping Examination	Nos	36	0.04	51	0.04
2.15.19.209	Clinical Haematological Examination	Nos	180	0.10	235	0.10
2.15.19.210	Biochemical Examination Calcium,Phosphorus,Total Protein,Glucose,Cu,co,Iron)	Nos	180	0.19	218	0.19
2.15.19.211	Urine Examination	Nos	90	0.13	95	0.13
2.15.19.212	Postmortom Examination	Nos	2100	1.24	3677	1.24
2.15.19.213	Bacterial Culture and Antibiotic Sensitivity	Nos	270	0..36	580	0.36
2.15.19.214	Fungus Culture and Isolation	Nos	45	0.10	60	0.10
2.15.19.215	Viral Examination (FMD.RD,IBD)	Nos	100	0.54	619	0.54
2.15.19.216	PPR Penside Examination	Times	6	0.15	6	0.15
2.15.19.218	Mycoplasma Examination	Nos	150	0.37	411	0.37
2.15.19.219	Salmonella Examination	Nos	150	0.37	411	0.37
2.15.19.220	F.M.D.Disease Diagnosis (N.S.P.ELISA)	Times	1	0.62	1	0.62
2.15.19.221	Sample Examination and Extra Examination of CVL Dispatch	Nos.	450	0.18	959	0.18
2.15.19.222	Cattle/Buffalo Subclinical Mastitis Test	Time	3	0.44	3	0.44
2.15.19.223	Region of Pandemic Disease Diagnosis	Time	6	0.21	6	0.21
2.15.19.224	Region of the Special Disease Diagnostic and Reporting	Time	3	0.22	3	0.22

S.N.	Programmes and Activities	Annual Targets			Annual Progress	Weightage (%)
		Unit	Targets	Weightage (%)		
2.15.19.225	Academic Disease Diagnosis	Time	6	0.30	6	0.30
2.15.19.226	Cow and Buffalo of Infertility camp sample collection and Examination	Time	6	0.30	6	0.30
2.15.19.227	Avian Influangja Examination	Nos.	100	0.74	327	0.74
2.15.19.228	Brucella Examination	Nos	150	0.15	208	0.15
2.15.19.229	Rabies Rapid Test	Nos	50	0.37	33	0.22
2.15.1.823	Laboratory Training (2 Weeks)Tecnicians	Time	2	4.19	2	4.19
2.15.2.335	Disease Diagnosis Technical Workshop	Time	1	0.30		
2.15.2.336	Districtwise Locally Sample collection and Dispatch Laboratory Workshop	Times	3	0.74	3	0.74
2.15.19.233	Half Yearly Epidimiological Bulletin Publication	Time	2	0.10	2	0.10
2.15.19.234	Annual Epidemiologicla Bulletin Publication	Time	1	0.07		
2.15.19.235	Annual Technical Report Dispatch CVL	Time	1	0.07	1	0.07
2.15.19.236	Half Yearly Laboratory Investigation Report Dispatch to VEC	Times	2	0.05	2	0.05
2.15.19.237	Official Staff Anti Rabies Vaccine	Nos	14	0.17	14	0.17
2.15.19.238	Official Staff Health Examination	Nos	14	0.17	14	0.17
2.15.19.239	Regional Wise Rabies , PPR,FMD and other Vaccine Bank Stablish	Times	3	0.22	3	0.22
2.15.19.240	National PPR,FMD,Swine Fiver and Ranikhat Disease Seromonitoring and Sample Collection	Dis.	16	1.18	16	1.18
2.15.19.837	Swine Fiver Disease Diagnosis (N.S.P.ELISA)	Nos	1	0.49	1	0.49

4. Laboratory Services

Parasitological Examination

Parasitological Examination of EPG and Blood Protozoa in the fiscal year 2074/075 Blood sample Staining Blood smears. A total of EPG 300 Sheep and Goat and 235 blood samples from animals were examined for different Animal.

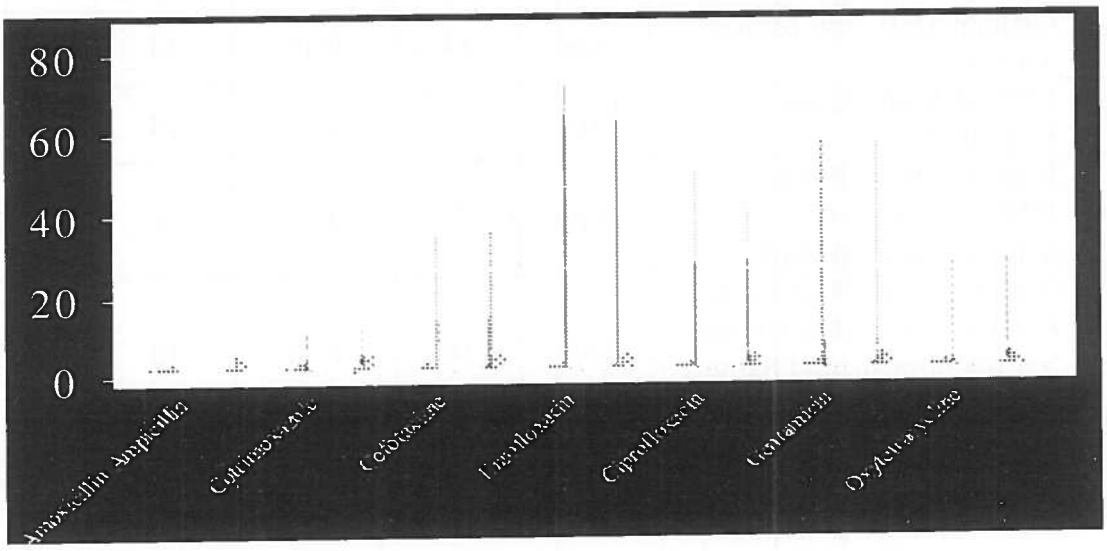
Microbiological Examinations

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 2074/75 a total of 580 samples were examined in microbiology unit of the laboratory.

Table: Different Bacteria isolates of Mastitis

S.N.	Name of the isolates	No. of Cases	Percentage of cases
1	*E.coli*	99	36.94
2	*Staphylococcus sps.*	37	13.80
3	*Streptococus sps.*	23	8.58
4	*Bacillus sps*	17	6.34
5	Fungus	5	1.86
6	No. growth	87	32.46
Total		268	100

All the organisms shown in the culture were subjected for the antibiotic sensitivity test and gave the following result:



R
MS
HS

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.

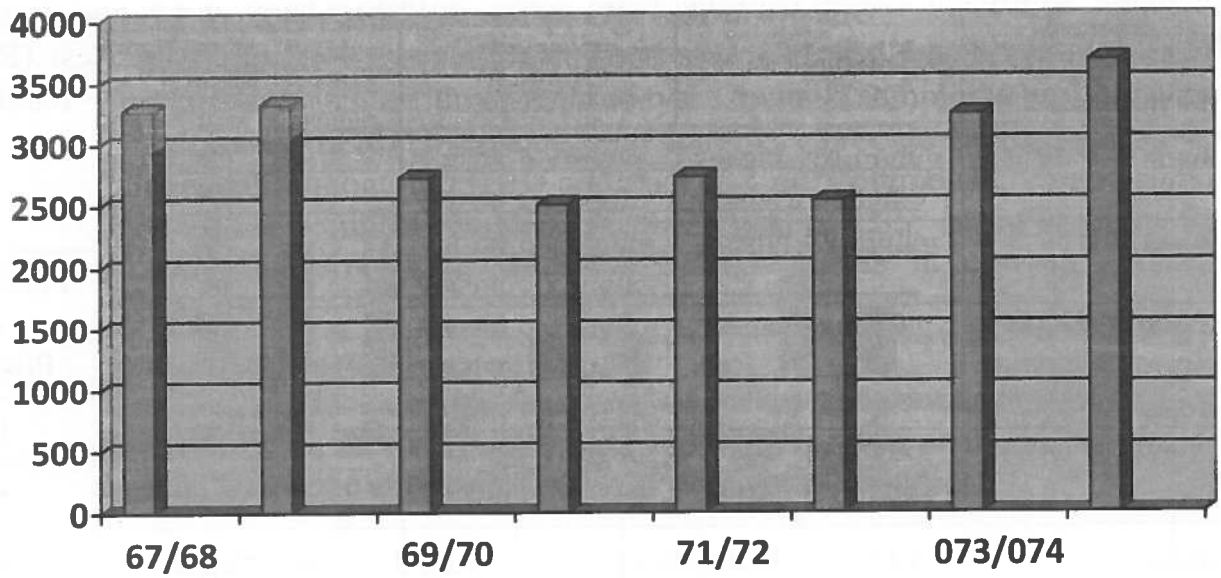


Table: Diseases of chickens diagnosed on the FY 2074/75 are summarized in the following table.

S.N	Diseases	Total	Percentage (%)
1.	Colibacillosis	714	19.41
2.	CRD	276	7.50
3.	Infectious Bursal Disease	420	11.42
4.	Coccidiosis	367	9.98
5.	Salmonellosis	296	8.05
6.	Mycotoxicosis	235	6.39
7.	Immunsupression	112	3.04
8.	New Castle Disease	144	3.91
9.	Omphalitis	213	5.79
10.	Ascitis	486	13.21
11.	Avian Influenza	31	0.84
12.	Others	383	10.41
	Total cases (n) = 3677	Maximum cases are mixed infections	

It can be seen during the FY 2074/75 Colibacillosis was the most prevalent poultry disease followed by Mycotoxicity. 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. The temporal pattern of major poultry diseases during the FY 2074/75 is as follows.

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 2074/75, the serum samples tested and their results are presented as follows:

Table: Serological Test Result in VL in FY 2074/75

Species	Number of Serum	Tested For	Test Method Applied	Results	Percentage of Positives
Cattle/Buffalo	87	Brucellosis	RBPT	All Negative	0
Dog	6	Brucellosis	RBPT	All Negative	0
Goats	115	Brucellosis	RBPT	All Negative	0
Poultry	80	Salmonellosis	PAT	42+ve	52.5
Poultry	**80**	**Mycoplasmosis**	**PAT**	**21+ve**	**26.25**

Table: Virological test results of samples of different species

Species	Number of Serum	Tested For	Test Method Applied	Results	Percentage of Positives
Goats	54	PPR	Penside test	24+ve	44.44
Dog /Pig/Goat	33	Rabies	RRT	1+ve Goat	3.03
Poultry	260	IBD	IBDV rapid test	134+ve	51.53
Poultry	32	Newcastle d/s	NDV rapid test	7 +ve	21.87
Poultry	327	Avian Influenza	AIV Rapid Test	31+ve (18 H9)	9.48
Pig	42	CSF	AB ELISA	41+ve	97.61

PPR ELISA Report of Serum Sample from Goat and Sheep (074/075)

S.N.	District	Total Sample	Positive	Negative	Doubtful
1	Rupendehi	81	75	3	3
2	Kapilbastu	80	57	18	5
3	Nawalparasi	12	10	2	0
4	Palpa	81	76	5	0
5	Parvat	22	19	3	0
6	Lamjung	81	48	21	12
7	Tanahun	46	30	4	12
8	Baglung	43	32	11	0
9	Gorkha	46	34	7	5
10	Myagdi	49	44	3	2
	Total	541	425	77	39

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 235 blood samples from animals were examined for different hematological parameters.

Biochemical examinations

Biochemical examinations included biochemistry of serum and routine and microscopic examination of urine. Multistick strip was used for routine urine analysis. Microscopic examination of urine was done after centrifugation of the urine samples.

Sample Collection and Dispatch

During 2074/75, serum samples, brain and tissue samples of different animal species and poultry were collected from the disease investigation sites. A total of 959 various samples were dispatched to Central Veterinary Laboratory, Kathmandu and National FMD and TADs laboratory, Kathmandu for confirmatory disease diagnosis.

Avian Influenza Surveillance (Laboratory Surveillance)

The annual avian influenza laboratory surveillance programme was continuing in the laboratory and it was successful in the detection of flu A cases. During this fiscal year 074/75 all together 31 flu A cases were identified out of 327 cases registered for the disease diagnosis. Four out of 31 flu A case were confirmed as 18 Sample H9 by CVL.

E. VETERINARY LABORATORY, SURKHET

1. Introduction

Veterinary Laboratory (VL) of the Mid-western Development Region (MDR) is situated in Birendranagar Municipality-7, Surkhet and was established in FY 1988/1989 AD. It provides laboratory diagnostic services to all the 15 districts of MDR. In this region, there are 3 zones (Rapti, Bhari and Karnali) and 15 districts. Geographically, the region is divided into 3 eco-zones (high hills, mid hills, and terai). 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 RVL, Surkhet is to promote the health of livestock, poultry and ensure safe animal products for consumer by assisting DLSO's offices, veterinarians, clients, and others who are responsible for animal health in detection and prevention of animal diseases.

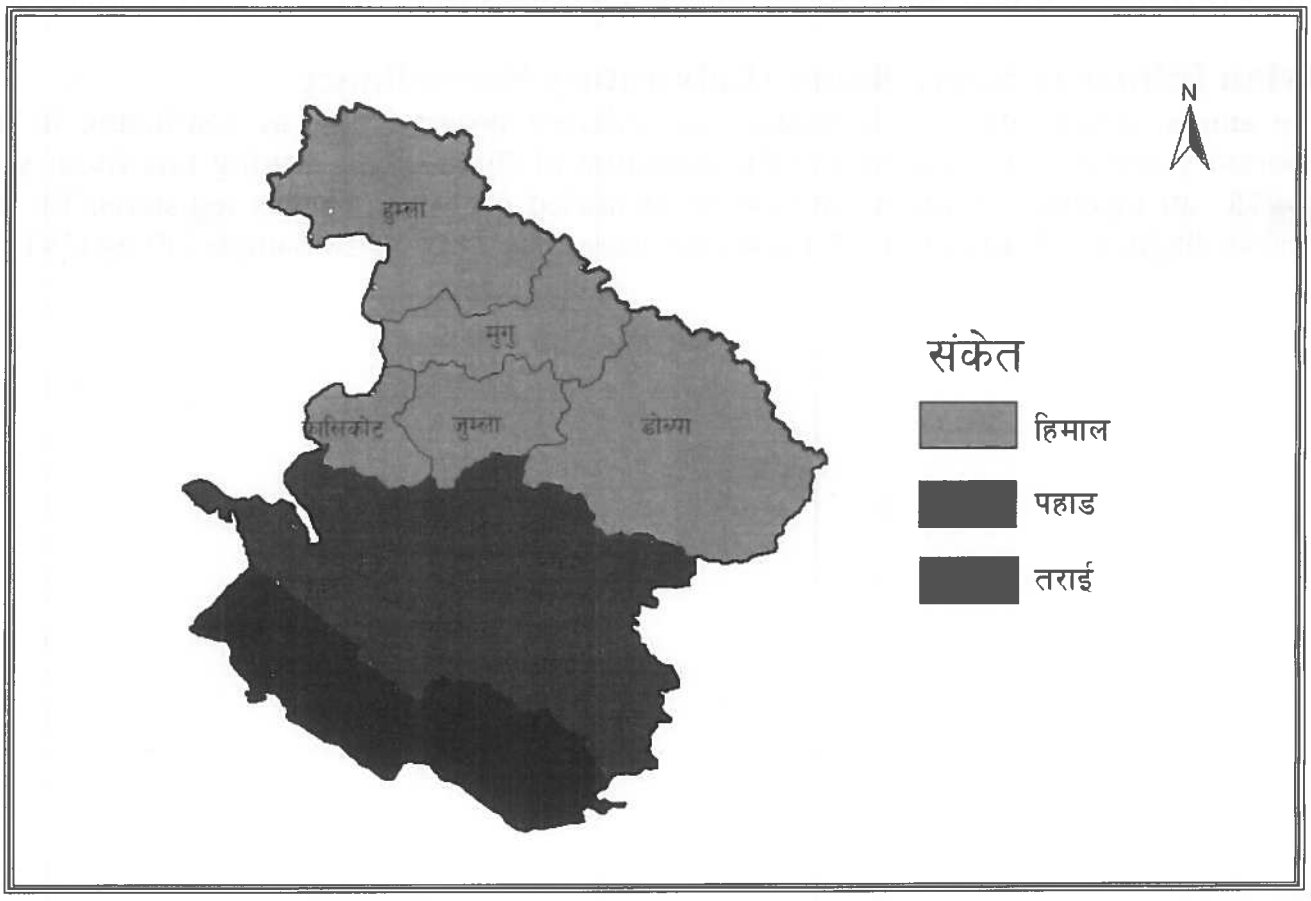


Figure: Map of Mid-western region showing the three eco zones.

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 DLSOs 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 DLSO's 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 2074/075

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

Table: Annual work program and summary of achievements (FY 2074/075)

S. N.	Activities	Unit	Annual		Progress %
			Target	Progress	
	Under the capital expenditure program				
1.1	Construction of Toilet for Public	Times	1	1	100
1.2	Construction of Ware/Store House	Quantity	1	0.78	78.5
1.3	Purchase of Furniture for official Purpose	Time	1	1	100
1.4	Computer Purchase with printers	Set	2	2	100
1.5	Electric Stabilizer Purchase for Freeze	Times	1	1	100
1.6	Purchase of Camera for official Purpose	Quantity	1	1	100
1.7	Office Building and Compound Wall Painting	Times	1	1	100
1.8	Construction of Gate and Maintenance	Times	1	1	100
	Under the administrative expenditure program				
2.1	Disease Diagnosis Technical Laboratory Training 2week	Times	2	2	100
2.2	District Level Laboratory upgrade training 3 Days in Pyuthan and Bardiya	Times	2	2	100
2.2	Regional level technical interaction about Disease diagnosis in Laboratory.	Times	1	1	100
2.3	District level technical interaction about field level sample collection and dispatch	Times	3	3	100
2.4	EPG Count, Larvae Culture Identification and Treatment	Quantity	300	1158	100
2.5	Blood Protozoa Identification	Quantity	120	212	100
2.6	Skin Scrapping	Quantity	60	64	100
2.7	Clinical Hematological Examination	Quantity	120	196	100
2.8	Biochemical Test (Calcium, Phosphorus,	Quantity	120	0	0

S. N.	Activities	Unit	Annual		Progress %
			Target	Progress	
	Total protein, Glucose, Copper, Iron)				
2.9	Urine Test	Quantity	60	62	100
2.10	Post Mortem	Quantity	750	2444	100
2.11	Bacteria culture, identification and Antibiotic sensitivity test	Quantity	150	376	100
2.12	Viral disease Examination of animals	Times	300	579	100
2.13	PPR Penside Test	Quantity	3	359	100
2.14	Mycoplasma Examination in poultry	Quantity	100	161	100
2.15	Salmonella Examination in poultry	Quantity	100	163	100
2.16	Sample collection and to dispatch CVL for further laboratory examination.	Quantity	300	3161	100
2.17	Regional level emergency Disease investigation team mobilization	Times	3	3	100
2.18	Epidemic Disease Investigation of Animal Disease.	Times	3	5	100
2.19	Avian influenza examination	Quantity	90	215	100
2.20	Brucella examination in animal	Quantity	120	665	100
2.21	Rabies examination	Quantity	3	12	100
2.22	Half yearly epidemiological bulletin publication	Times	2	2	100
2.23	Yearly epidemiological bulletin publication	Times	1	1	100
2.24	Material preparation and dispatch to publication the Annual Technical Bulletin	Times	1	1	100
2.25	Staffs Health Checkup	Person	14	2	
2.26	Regional level Vaccine Bank Management of PPR and Rabies	Times	3	7	100
2.27	Sero Monitoring Program of National PPR, FMD, Swine Fever, Ranikhet disease under the national disease control program.	District	15	15	100
2.28	HA/HI Examination	Times	3	3	100
2.29	Website design and Preparation	Times	1	1	100
2.30	Surveillance of Abortion in Animal	Times	3	3	100
2.31	Surveillance of FMD Disease	Times	2	3	100
2.32	Surveillance of Blue tongue Disease in Sheep	Times	2	2	100
2.33	Surveillance of CCPP in Goat	Times	2	3	100
2.34	Surveillance of Antimicrobial Resistance	Times	3	3	100
2.35	Surveillance of PPR	Times	2	3	100
2.36	Surveillance of Antimicrobial residue in Milk and Meat	Times	3	3	100
2.37	Changing filter in Water Distillation Set	Times	1	1	100
2.38	Publication of Laboratory and Animal Disease Awareness material and Distribution	Times	1	1	100

4. Laboratory Services

Parasitological examination

Parasitological unit examines fecal samples of various species using different methods as direct smear, sedimentation, and floatation methods. Parasitological unit not only identify the parasites but also quantify the parasitic burden of the nematode, trematode and cestode by Mc-Master method. In this fiscal year 2074/075, total 1158 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 RVL, Surkhet (FY 2074/075)

Parasites	2074/075	Percentage
Fasciola	95	8.20
Paramphistomum	31	2.60
Strongylus	71	6.13
Trichuris	105	9.06
Haemonchus	25	2.15
Coccidia	28	2.41
Ascaris	95	8.20
NAD	706	60
Total	**1158**	**100**

The pattern of different parasites seen during faecal examination

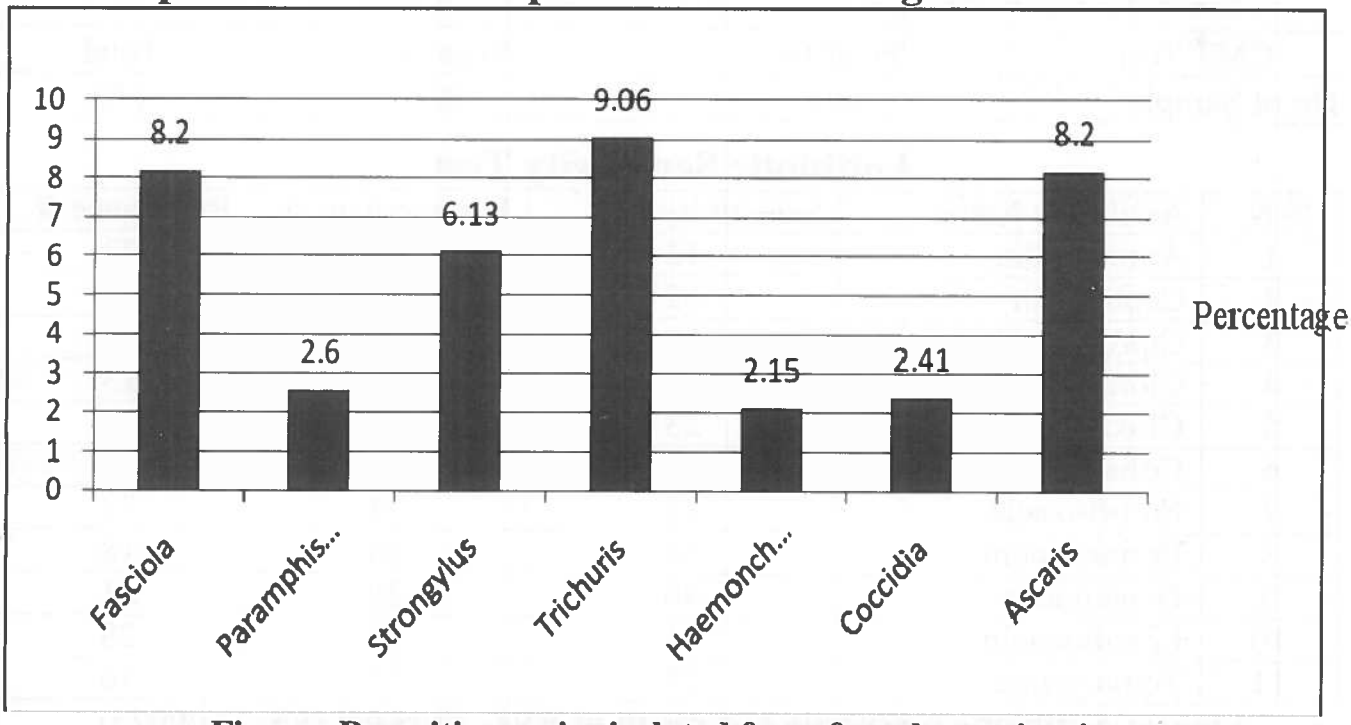


Figure: Parasitic species isolated from faecal examination.

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 RVL Surkhet, during 2074/075 the test result is given below. Total 264sample were culture for bacterial and fungal culture among them 190 sample had growth of bacteria and 5 sample had growth of fungus.

SN	Name of Bacteria Isolated Spp	No of Isolates
1	E. coli	99
2	Salmonella	3
3	Streptococcus	19
4	Staphylococcus	28
5	Pseudomonas	12
6	Proteus	16
7	Bacillus	7
8	Klebsiella	5
9	Shigella	1
	Total	190

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 170 milk sample were tested. Among them 150 sample were positive and further test microbial culture, isolation and Antibiotic Sensitivity test were done.

CMT Test	Positive	Negative	Total
No of Sample	150	20	170

Antibiotic Sensitivity Test

S.N.	Antibiotic Name	Sensitivity %	Intermediate %	Resistance %
1	Amoxycillin	12	65	23
2	Cephalexin	62	31	7
3	Ciprofloxacin	39	4	21
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

Figure: Antibiotic sensitivity test result of RVL, Surkhet (FY 2074/075)

Antibiotic Residue Test in Meat and Milk 2075-76

क्र स	जिल्ला	मासकोु नमुनासंकलन संख्या	मासु नमुना परिक्षण संख्या	No of Residue Positive Sample	Tetracycline Group	Penicillin Group	Macrolid, Aminoglycoside & Sulfonamide group
१	दैलेख	बँगुरको ८	७	६	२ वटामा ०.४mg/kg १ वटामा ६.४ mg/kg	२ वटामा २.५ mg/kg १ वटामा ५.३ mg/kg	२ वटामा ०.२५ mg/kg
		रागाँको ८	८	४	२ वटामा ०.२ mg/kg १ वटामा ०.४ mg/kg	२ वटामा २.५ mg/kg	२ वटामा ०.२५ mg/kg
		ब्रोइलर कुखुरा २५	२०	८	२ वटामा ०.८ mg/kg १ वटामा०.२ mg/kg १ वटामा ०.४ mg/kg	१वटामा २.५ mg/kg	२ वटामा ०.२५ mg/kg १ वटामा ०.५ mg/kg १ वटामा १.० mg/kg
२	सुर्खेत	बँगुरको ८	७	४	२वटामा ०.४ mg/kg १ वटामा ०.२ mg/kg	१वटामा २.५ mg/kg १ वटामा ५.३ mg/kg	१वटामा ०.५ mg/kg
		रागाँको १२	८	४	२वटामा ०.२ mg/kg १वटामा ०.४ mg/kg	२ वटामा ८.७ mg/kg १वटामा ७.७ mg/kg	२ वटामा ०.२५ mg/kg १वटामा १.० mg/kg
		ब्रोइलर कुखुरा ३०	२०	१०	२ वटामा ०.४ mg/kg १ वटामा ०.८ mg/kg र ०.२ mg/kg	३ वटामा २.५ mg/kg १ वटामा ८.७ १ वटामा ३.६ mg/kg	५ वटामा ०.२५ mg/kg १वटामा ५.३ mg/kg १वटामा ८ mg/kg
३	बाँके	बँगुरको ४	४	२	१ वटामा ०.२mg/kg	१ वटामा २.५ mg/kg	१ वटामा ०.२५ mg/kg
		रागाँको १२	१२	२	१ वटामा ०.२ mg/kg	१ वटामा २.५ mg/kg	
		ब्रोइलर कुखुरा २१	२१	१०	२ वटामा ०.२ mg/kg १ वटामा ०.४ mg/kg १ वटामा ०.८mg/kg	३ वटामा २.५ mg/kg	३ वटामा ०.२५ mg/kg १ वटामा ०.५ mg/kg
		दुध ९	९	४	१ वटामा ०.४ mg/kg १ वटामा ३.६ mg/kg	३ वटामा २.५ mg/kg	
		जम्मा	११६	५४	२८	२४	२४

Figure: Antibiotic residue test result of RVL, Surkhet (FY 2074/075)

4.3 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 figure below.

Disease	Sharawan	Bhadra	Ashwin	Kartic	Mangsir	Poush	Magh	Falgun	Chaitra	Baishak	Jestha	Ashar	Total
Colibacillosis	44	44	19	42	27	57	53	37	80	96	110	37	646
CRD	16	23	42	13	32	23	49	20	33	52	18	65	386
IBD	49	26	28	19	17	23	28	23	51	74	75	65	478
ND	0	2	0	0	1	2	0	1	0	3	0	8	17
Ascities	3	10	17	9	6	31	7	9	6	8	3	2	111
Gout	5	25	19	5	10	3	8	5	15	10	4	3	112
Coccidiosis	3	3	2	1	1	5	10	2	2	1	5	5	40
Mycotoxicity	42	60	26	14	14	18	12	17	13	49	25	14	304
Other	11	19	13	16	30	31	15	13	23	18	25	10	224
Total	**173**	**212**	**166**	**119**	**138**	**193**	**182**	**127**	**223**	**311**	**265**	**209**	**2318**

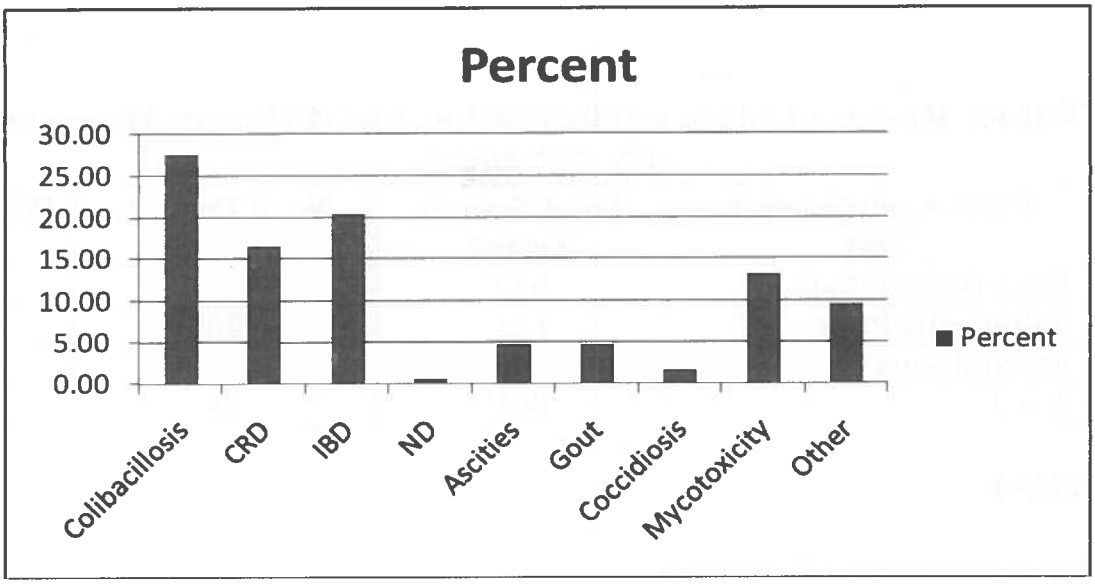


Figure: Poultry diseases identified in post-mortem.

Virological examination

A total of 144 samples of different domestic animal were collected from the different field of RVL, 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 (LPAI)	52	58
IBD	7	22	29
ND	1	38	39
IB	0	3	3
Rabies	10	5	15
Total	24	120	144

PPR Penside Test: Total 100 samples were tested by PPR penside test. Out of which 30 samples were found positive for PPR.

Serological examination

A total of 901 serum samples of different domestic animal were collected from the different field of RVL, Surkhet for serological analysis of different zoonotic and other disease by Plate Agglutination Test. All 901 samples were tested. The results of the test are presented in the table below.

Table: Result of plate agglutination test different Diseases (FY 2074/075)

S.N.	Plate Agglutination Test	Total Sample Tested	No of Positive Sample	Positive %
1	Rose Bengal Plate	672	0	0
2	Salmonella Plate	121	26	21.48
3	Mycoplasma Plate	108	39	36.11
	Total	901	65	-

ELISA TEST

1 PPR Seromonitoring Program

Under the National PPR Control program, Directorate of Animal Health had provided 103500 doses of PPR vaccine for 15 districts of this mid western region. RVL Surkhet supported the program by sero-monitoring. District-wise collection of serum sample is presented in the table below. Total 3006 samples were collected and 2140 samples were tested by PPR antibody ELISA Test. This shows the 73.6 % sero-conversion of PPR vaccine.

SN	Name of District	Target of Sample	Collected Sample	Test Percent	Test Sample	Positive	Negative	Positive Percent	Remarks
1	Banke	250	232	79.31	184	161	23	87.50	
2	Bardiya	250	255	72.16	184	122	62	66.30	
3	Dailekh	200	200	76.50	153	137	16	89.54	
4	Dang	300	312	58.97	184	120	64	65.22	
5	Dolpa	125	126	73.02	92	73	19	79.35	
6	Humla	150	150	61.33	92	86	6	93.48	
7	Jajarkot	200	205	60.00	123	76	47	61.79	
8	Jumla	175	178	51.69	92	61	31	66.30	
9	Kalikot	150	166	55.42	92	49	43	53.26	
10	Mugu	140	127	72.44	92	84	8	91.30	
11	Pyuthan	175	186	62.37	116	78	38	67.24	
12	Rolpa	175	175	100.00	175	65	110	37.14	Low
13	Rukum	200	200	96.50	193	125	68	64.77	
14	Salyan	225	227	81.06	184	177	7	96.20	High
15	Surkhet	275	267	68.91	184	161	23	87.50	
	Total	**2990**	**3006**	**71.19**	**2140**	**1575**	**565**	**73.60**	

Figure: PPR Sero-Monitoring test result of RVL, Surkhet (FY 2074/075)

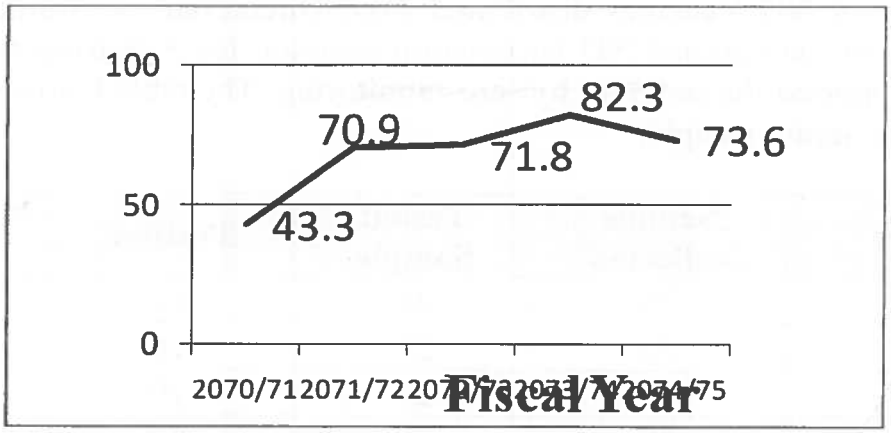


Figure: Mid-Western Region PPR Sero-monitoring antibody ELISA Result by RVL, Surkhet (FY 070/71 to 074/75)

2. Swine Fever Sero-monitoring Program

The total number of swine fever Vaccines distributed from Directorate of Animal Health was 45000 doses under the national swine fever vaccine program for 3districts for this region. RVL, Surkhet supported the program by sero-monitoring. The table below shows district -wise collection of serum sample.

S. N.	District	Sample Collected	Serum collection		
			Test Sample	Positive	Positive%
1	Banke	60	28	18	64.28
2	Bardiya	60	35	4	11.42
3	Dange	60	54	19	35.18
	Total	**180**	**117**	**41**	**35.04**

Figure 6: Swine Fever Sero-Monitoring test result of RVL, Surkhet (FY 2074/075)

3. FMD Sero-monitoring Program

The total number of FMD Vaccines distributed from Directorate of Animal Health was 110000 doses under the national FMD vaccination program for 3 districts for this region. RVL, Surkhet supported the program by sero-monitoring. The table below shows district -wise collection of serum sample.

SN	District	Sample Collected	Sero-monitoring Results		
			Total Sample tested	Positive	Positive %
1.	Bardiya	225	204	127	62.25
2.	Banke	160	157	117	74.52
3	Dank	225	569	184	88.46
	Total	**610**	**569**	**428**	**75.21**

Figure: FMD Sero-Monitoring test result of RVL, Surkhet (FY 2074/075)

4. ND Sero-monitoring Program

The total number of ND Vaccines distributed from Directorate of Animal Health was 110000 doses under the national ND vaccination program for 3 districts for this region. RVL, Surkhet supported the program by sero-monitoring. The table below shows district -wise collection of serum sample.

District	Sample collected	Tested Sample	Positive	Positive%
Rolpa	25	24	19	79.17
Rukum	30	27	16	59.26
Dailekh	30	27	19	70.37
Pyuthan	30	25	12	48
Jajarkot	30	26	13	50
Total	**145**	**129**	**79**	**61.24**

Figure: ND Sero-Monitoring test result of RVL, Surkhet (FY 2074/075)

List of designations.

Table: List of designations in Regional 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	1 Contract
	Total		**14**	**13**	

Problems of Regional Veterinary Laboratory, Surkhet

- Limited budgets on logistics and program implementation in rural mountain areas.
- Lack of staffs (especially technical staffs) and laboratory equipments 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.
- Lack of the laboratory vehicle for well laboratory investigation and examination.

F. VETERINARY LABORATORY, DHANGADI

1. Introduction:

Veterinary Laboratory, is situated in Dhangadhi, Sub-Metropolitan of Sudur Paschim Province of Nepal. This laboratory is established as the reference laboratory of the Province with its service area covering the nine district. Veterinary Diagnostic Laboratory Dhangadhi was established in F/Y 2049/50 as the name of Regional Livestock Disease Investigation Laboratory.

Geographically the province is divided into three parts namely, Mountains, Hills and Terai. The mountainous districts of the Provence region comprises of Bajura, Bhajhang, and Darchula, Like wise Hilly districts of the province are Baitadi, Dadeldhura, Acchamm, & Doti. Kailali and Kanchanpur are the Terai districts of the Sudur Paschim Province. All districts have a high potentiality for the development of livestock industry, viz cattle, buffalo, sheep, goat, pig, poultry, duck, etc.

On the other hands livestock farming is growing towards commercialization, but particularly poultry farming is rapidly growing among the farming communities. Layer and broiler are reared in commercial scale in Kailali and Kanchanpur districts. Recently some farmers of Dadeldhra, Baitadi, Doti, Bajhang, Bajura Achham are showing interest in poultry farming, and they have started to keep poultry in number of few hundreds. Economically important diseases of poultry in this region are New Castle, Infectious Bursal Disease, Coccidiosis, Chronic Respiratory Disease (CRD), Infectious Bronchaitis (IB), 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.

2. Staffing of Lab. Dhangadi

S.N.	Post	Class	number	fulfilled	vacant	Remark
1	Senior Veterinary officer	G.II	1	1	0	
2	Veterinary officer	G.III	3	2	1	
3	Veterinary Technician	NG.I	3	3	0	
4	Junior Veterinary Technician	NGII	2	2	0	
5	Accountant	NGI	1	1	0	
6	Kharidar	NG2	1	1	0	
7	Driver		1	1	0	
8	Office helper	No class	2	2	0	
	Total		14	13	1	

3. Summary of Progress Report in F/Y 074/75 is presented in Table below

S.N.	Programs and Activities	Unit	Annual Target	Progress Progress	Percentage
A	Furniture and fixtures	Percent	100%	100%	100
1.	**Laboratory Service programme-**				
1.1	Parasitological Examination	Nos			
1.1.1	Identification of parasites and EPG Count	Nos	300	303	100
1.1.2	Identification of blood protozoa	Nos	150	190	100
1.1.3	Skin scraping Test	Nos	60	72	100
1.2	Clinical hematological examination	Nos	100	135	100
1.3	Biochemical examination	Nos	150	181	100
1.4	Urine Test	Nos	60	78	100
1.5	Pathological examination				100
1.5.1	Postmortem examination	Nos	500	914	100
1.6	Microbiological culture & Identification Antibiotic sensitivity Test	Nos	300	310	100
1.7	fungus culture & Identification	Nos	100	108	100
1.8	Viral diseases examination of Birds(ND/IBD/AI/IB) examination	Nos	300	410	100
1.9	PPR Pensite Test	Time	3	3	100
1.10	Salmonellosis examination (PAT)	Nos	150	391	100
1.11	Mycoplasma	Nos	150	391	100
1.12	Sample collection test & Dispatch	Nos	150	1089	100
1.13	Sub clinical mastitis investigation in cow & Buffalo	Nos	3	3	100
1.14	Investigation of Kumri in goat	Time	2	2	100
1.15	Sample collection in Infertility camp	Time	3	3	100
1.16	Avian Influenza Rapid Test	Nos	100	193	100
1.17	FMD surveillance	Time	3	3	100
1.18	Prevention Khari disease	Time	2	2	100
1.19	Babesiosis Surveillance	Time	4	4	100
1.20	Regional level Investigation of Emergency Diseases	Time	3	3	100
1.21	Epidemic investigation	Time	6	6	100
2.0	**Zoonotic disease investigation programs**				100

S.N.	Programs and Activities	Unit	Annual Target	Progress Progress	Percentage
2.1	Brucella test	Nos	150	256	100
2.2	Rabies test	Nos	25	49	100
2.3	Interaction with Technicians about Animal Diseases	Nos	1	1	100
2.4	Interaction with Technicians about sample collection on field	Nos	2	2	100
2.5	Vaccine Bank Management PPR & Rabies	Nos	3	3	100
2.6	PPR Sero-monitoring & Sample Dispatch	Nos	1	1	100
2.7	FMD Sero-monitoring & Sample Dispatch	Nos	2	2	100
2.8	Swine fever Sero-monitoring & Sample Dispatch	Nos	1	1	100
2.9	Ranikhet Sero-monitoring & Sample Dispatch	Nos	1	1	100
3	Supervision of District Labs.	Time	3	3	100
4	Technical Interaction of animal disease	Time	3	3	100
5	District level lab Technique training 1day	Time	2	2	100
6	Participation in budget, program,& workshop	Time	3	3	100
7	**Publication Programme:**				100
7.1	Half Yearly Epidemiological bulletin publication	Time	2	2	100
7.2	Yearly Epidemiological Bulletin publication	Time	1	1	100
7.3	Half Yearly Laboratory Investigation Report Dispatch VEC	Time	2	2	100
7.4	Annual Technical Book material Preparation	Time	1	1	100
8	Anti Rabies vaccine for staff	Nos	12	12	100
9	Health check up for staff	Nos	12	12	100
10	Web site	Time	2	12	100
11	Technology Transfer to Basic Lab.	Time	6	6	100
12	Observation Tour in Inter Lab.	Time	3	3	100
	Total progress				100

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 Enrofloxican was more effective.

Biochemical:

Altogether 154 samples were collected & analyzed in this fiscal year for estimated calcium, phosphorus, Total protein, & glucose

Sample type	Number	Test type	Remarks
Serum	181	biochemical for Ca ,phosphorus ,protein etc	

Biochemical examination of serum was performed with the serum sample of suffering from Khari disease & Goats, mainly for estimation of serum calcium & phosphorus level. However, the Calcium content of the serum was recorded from minimum of 11 to high as 119mg/dl. Likewise serum samples of goat were also tested for Ca, P, but result was not reliable.

Investigation program (Seteria Spp) Kumri in Goats

A part from above activities this laboratory had 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 & Tarai area of Kailali & Kanchanpur district. Active surveillance was done through questionnaire and serum Feacal samples were taken from infected goats.

This investigation programs was conducted in sites of Kaiilali / Kanchanpur district namely, Godawari Municipality & Chure VDC / Laljhadi . In this study a total of 114 house hold were interviewed and sampled, there were 916 goats in that area .Summary of investigation and finding are given below

Method of Investigation

Active Surveillance through questionnaire & Clinical examination.

Finding

S.N	Particular	Result	Remarks
1	Total no. of samples tested for investigation of Kumri (*Setaria spp.*)	104	
2	Affected month	Ashwin - Kartik	
3	Prevalance Rate (%)	10.60	Most of Goats affected by internal parasites

Sub clinical Mastitis Investigation program

This program was conducted to see the prevalence of sub clinical mastitis in milking cow & Buffalo of Kailali & Kanchanpur districts. So fresh milk samples were taken from farmers directly and tested by SLST reagent immediately.

Investigation Site: Kailali & Kanchanpur

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

Method – Active Surveillance

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

Summary of Sub clinical mastitis Investigation program : Kailali

Site	Farmer number	Cow Milk sample	Buffalo Milk sample	Total
Kailali Kanchanpur	567	509	332	841
Total	168	509	332	841

Findings:

- Total Number of sub clinical positive in cow & buffalo :187
- Total Prevalence in Buffalo was 22.23%.
- Prevalence as more in cow because most of Cow were crossbreed, poor management.