



ANNUAL REPORT

MONTANA DEPARTMENT OF LIVESTOCK
Montana Veterinary Diagnostic Laboratory

Mission Statement

To serve the State of Montana by providing high quality, accurate, financially accessible and timely veterinary diagnostic testing, results and consultation; to assist state animal health officials in the diagnosis, control, and prevention of animal disease; and to contribute to state and national efforts to protect both animal and public health.



FISCAL YEAR

July 1, 2021 through June 30, 2022

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Fig. 1—Sheep (Pexels.com)

LAB DIRECTOR'S STATEMENT

The Montana Veterinary Diagnostic Laboratory returned to a state of normal operations in FY 2022 as the nation began to emerge from the impact of SARS-CoV-2. With a full staff of trained technicians, we were able to make significant progress on multiple fronts including expanding our test offerings in response to client feedback and readying for the next significant disease outbreak. This report contains a summary of test data from all sections of the Montana Veterinary Diagnostic Laboratory with the exception of the Montana Central Milk Laboratory.

Throughout the fall/winter season of FY22, the MVDL performed over 9000 tests for Chronic Wasting Disease (CWD) on behalf of Montana Fish Wildlife and Parks and Montana hunters. The MVDL also contributed to the national effort to mitigate the 2022 outbreak of highly pathogenic avian influenza that impacted over 40 million birds in 38 states. Montana had over 78,000 birds affected by the outbreak as of the time of writing this report.

The Department of Livestock is pleased to announce that the state legislature has approved funding for the construction of a new veterinary diagnostic lab facility. The new building will be located on the Montana State University campus and will be a combined lab complex with the Department of Agriculture's analytical lab and the MSU Wool Lab. The MVDL portion of the lab will feature a significant increase in square footage relative to the current facility and also significant improvements in biosecurity. Currently, MVDL staff are working on refining the final design of the facility and construction is expected to be complete in the spring of 2025.

As we head into FY2023, our focus will be on the continuous improvement our business operations and improving our level of service for our clients. We would like to thank all our clients for their continued business and look forward to providing your diagnostic testing needs in the future.

Sincerely,



Gregory Juda, PhD
Lab Director
Montana Veterinary Diagnostic Laboratory

DIAGNOSTIC LAB STAFF FY2021

Administration

Gregory Juda, PhD.....Lab Director
Steve Smith, DVM, DACVPLead Veterinary Pathologist
Jonathon Sago, DVM, DACVP..... Veterinary Pathologist
Erika Schwarz-Collins, DVM, MPH, PhD..... Veterinary Microbiologist

Administrative Support

Tess Moore..... Quality Manager
Cathy Ortega Front Office
Michelle Reynolds Front Office
Lauren Larios..... Pathology/Administrative Assistant

Clinical Pathology

Mathilde Buenrostro..... Technician
Katie Arenas Technician

Histology

Dan Zou, PhD..... Technician

Microbiology

Kaylee Krantz..... Technician
Colleen Matzke, MS Technician

Milk Laboratory

Zvakanaka G Masarirambi..... Technician
Erin Burns Technician

Molecular Diagnostics

Aracely Ospina-Lopez, MS..... Technician
Daniel Arenas, MS Technician

Serology

Antonio Fuentes Sanchez..... Technician
Diana Durnal Technician

Virology

Sarah Horak..... Technician
Brian Eilers, MS Technician

Fig. 2—Stacked Rocks (Pexels.com)

B U D G E T A N D F U N D I N G

Montana Veterinary Diagnostic Laboratory (MVDL) is funded by multiple sources including fee income from tests performed, Montana State General Funds, Montana State Special Revenue (livestock head tax), and federal grant funds. Fee income of approximately 50% is typical for state-run diagnostic test laboratories across the country.

Although a substantial portion of MVDL’s budget is supplied by fee income, the State of Montana, the livestock industry, and the National Animal Health Laboratory Network (NAHLN) are also significant contributors to funding annual lab operations and allow the laboratory to better fulfill our mission and serve Montana. The following graph and table detail the sources and amounts contributed to our operational budget for FY2022.

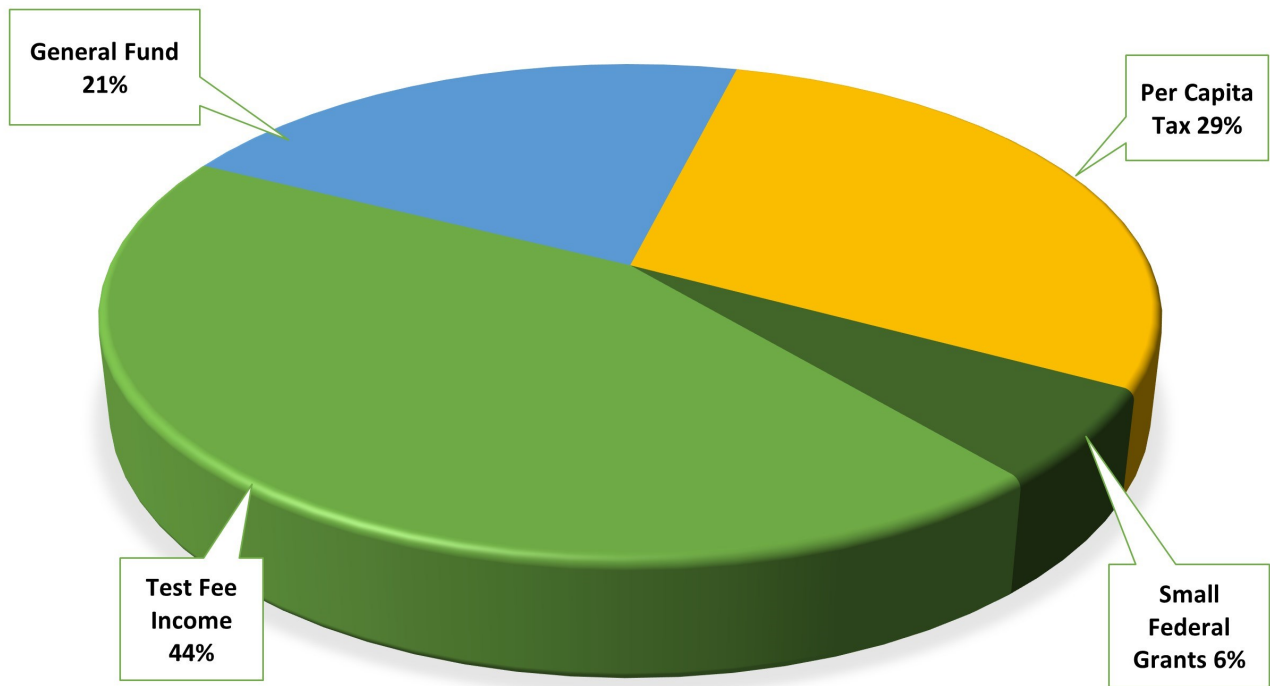


Fig. 3—MVDL Funding Sources

2022 Fiscal Year Lab Funding Sources	
Test Fee Income	\$1,443,092
General Fund	\$708,496
Per Capita Tax	\$959,193
Small Federal Grants	\$199,010
Total Operational Budget	\$3,309,791

NAHLN MEMBER LAB

Montana Veterinary Diagnostic Lab (MVDL) is a member of the National Animal Health Laboratory Network (NAHLN), a nationwide consortium of animal diagnostic labs coordinated by the US Department of Agriculture. The purpose of NAHLN is to support US animal agriculture by supporting early detection, rapid response, and appropriate recovery from high-consequence animal diseases.

As a member lab, the MVDL receives federal grant money on an annual basis to support the purchase of critical infrastructure including equipment, training, and/or supplies. This funding has substantially increased MVDL operational capabilities via the purchase of equipment utilized throughout the laboratory in support of NAHLN scope disease testing. The MVDL has the capability to perform testing on behalf of the NAHLN for nine different high impact animal diseases including:

- ◆ Foot and Mouth Disease
- ◆ Classical Swine Fever
- ◆ Vesicular Stomatitis
- ◆ Avian Influenza (IAV-A)
- ◆ Swine Influenza (IAV-S)
- ◆ Pseudorabies
- ◆ Newcastle Disease (Avian Paramyxovirus)
- ◆ African Swine Fever
- ◆ Chronic Wasting Disease

NAHLN Laboratory Designations – March 2022

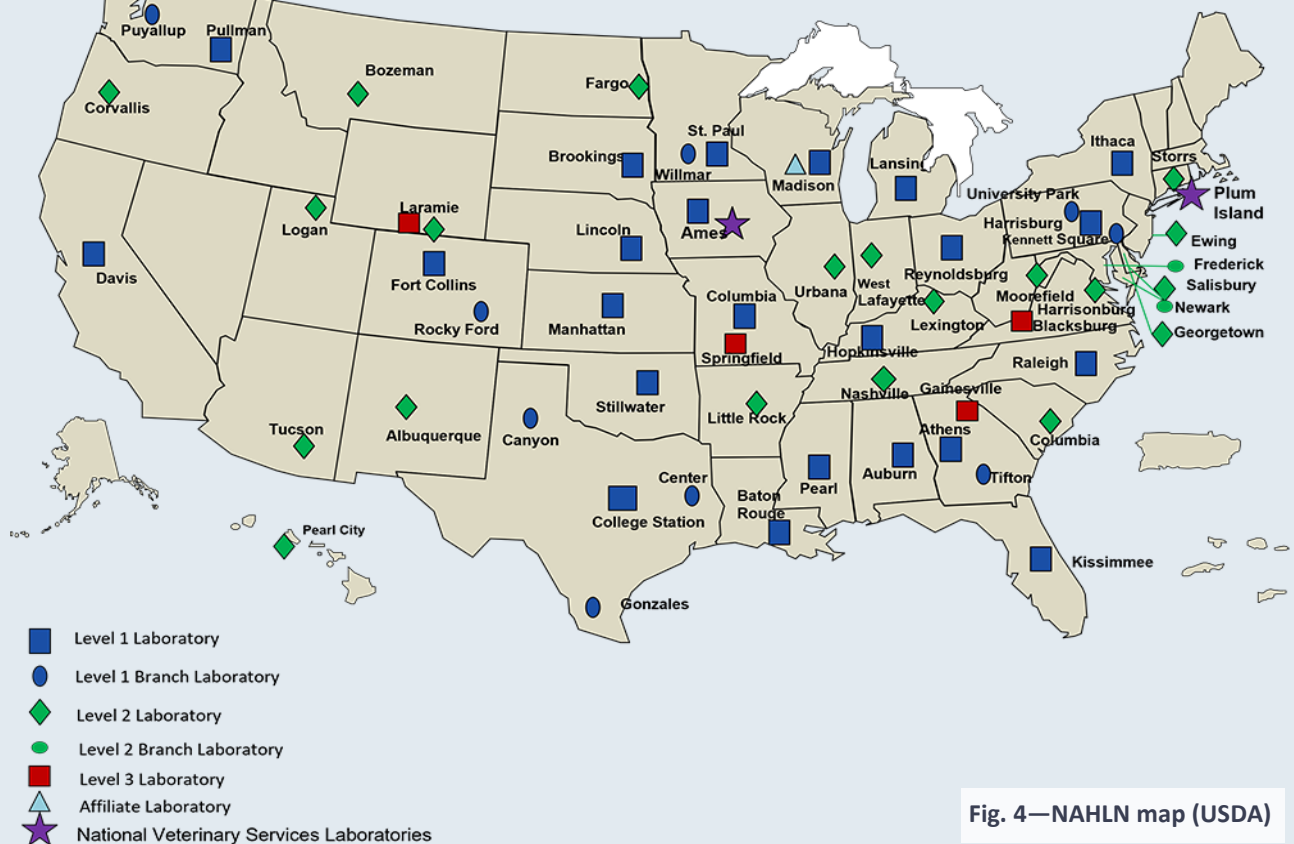


Fig. 4—NAHLN map (USDA)

ACCESSION AND TESTING DEMOGRAPHICS FY22

An accession is a specimen or group of specimens from either a single animal or a herd, belonging to one owner, from a single submitter. Accessions are sometimes referred to as cases. Multiple individual tests may be performed on a single accession or specimen. The following graphs represent the percentage of accessions and total tests performed by species with domestic cattle representing the highest percentage of our total individual tests. A comparison of FY21 and FY22 accession and testing numbers is provided

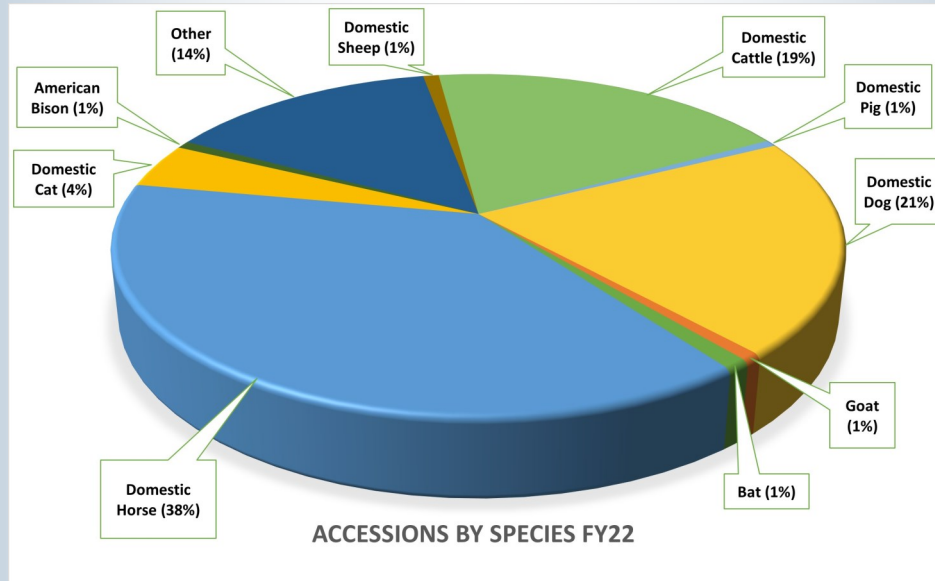


Fig. 5— Accessions by Species

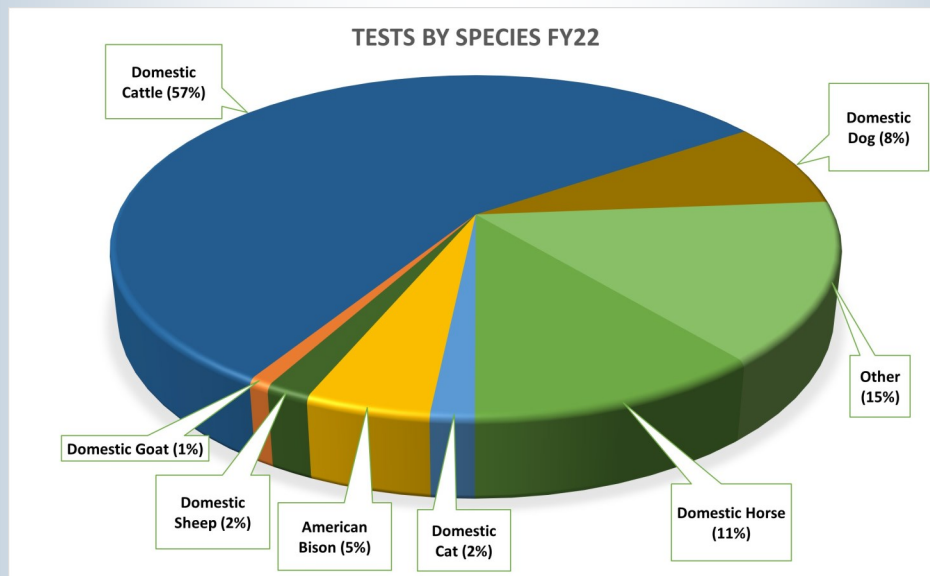


Fig. 6— Tests by Species

Year-Over-Year Accessions and Testing Data:

	FY2021	FY2022
Total Accessions	19,813	20,909
Total Tests	180,161	162,009

F Y 2 2 R A B I E S S U M M A R Y

One critical public health function of the Montana Veterinary Diagnostic Laboratory (MVDL) is rabies testing within the State of Montana. During Fiscal Year 2022, 13 bats, two skunks, and one cat, cow, dog, and horse tested positive. The majority of rabies testing in bats and identification of positive samples occurs during warmer months, when bats are more active. Causes of an unsuitable test result typically involve lack of an appropriate anatomic test sample (brain stem and cerebellum) or decomposition of the tissue to be tested.

Species	Negative	Positive	Unsuitable	Total
American Badger	1	0	1	2
Bat	170	13	14	197
Black Bear	1	0	0	1
Bobcat	1	0	0	1
Bushy-tailed Woodrat	1	0	0	1
Common Raccoon	20	0	0	20
Coyote	1	0	0	1
Domestic Cat	102	1	0	103
Domestic Cattle (Bos taurus)	12	1	2	15
Domestic Dog	113	1	0	114
Domestic Goat (Capra hircus)	6	0	1	7
Domestic Horse	7	1	0	8
Domestic Pig	0	0	1	1
Domestic Sheep	1	0	0	1
Ferret	2	0	0	2
Mink	0	0	1	1
Mountain Lion	1	0	0	1
Mouse	2	0	0	2
Mule	1	0	0	1
North American Porcupine	1	0	0	1
Prairie Dog	0	0	1	1
Red Fox	2	0	0	2
Squirrel	2	0	0	2
Striped Skunk	14	2	0	16
Vole	1	0	0	1
Weasel	1	0	0	1
Total	463	19	21	503

Fig. 7—Bat (MT FWP)

F Y 2 2 B R U C E L L A S U M M A R Y

Several of our highest volume tests are for *Brucella abortus*, and these also serve our public health mission. The following table represents the *Brucella* tests performed by the Montana Veterinary Diagnostic Laboratory (MVDL). In FY2022, the MVDL performed 107,787 tests for *Brucella abortus* which represented over 50% of the MVDL's total testing volume, that serves as the cornerstone of a robust surveillance program for brucellosis in southwest Montana.

Tests by Month	FPA	BAPA	CF	Card	SPT 1:50	STT 1:50	STT: 1:25	Rivanol	Total
July	1,967	447	37	5	7	12	0	0	2,475
August	8,160	363	24	10	3	15	1	0	8,576
September	11,140	203	27	21	0	8	0	0	11,399
October	24,615	439	39	15	2	35	0	0	25,145
November	25,625	467	73	52	8	13	0	0	26,238
December	12,555	478	64	9	7	21	0	0	13,134
January	3,476	292	35	1	5	3	0	0	3,812
February	2,163	637	39	16	3	17	0	0	2,875
March	3,472	544	95	39	8	10	0	2	4,170
April	2,754	621	75	11	6	49	0	0	3,516
May	3,585	423	40	16	3	12	0	0	4,079
June	1,776	540	32	2	3	15	0	0	2,368
Total Tests	101,288	5,454	580	197	55	210	1	2	107,787

- * FPA: Fluorescent Polarization Assay
- * BAPA: Buffered Acidified Plate Antigen Test
- * CF: Complement-Fixation Test
- * Card: Standard Card Test
- * SPT: Standard Plate Test
- * STT: Standard Tube Test

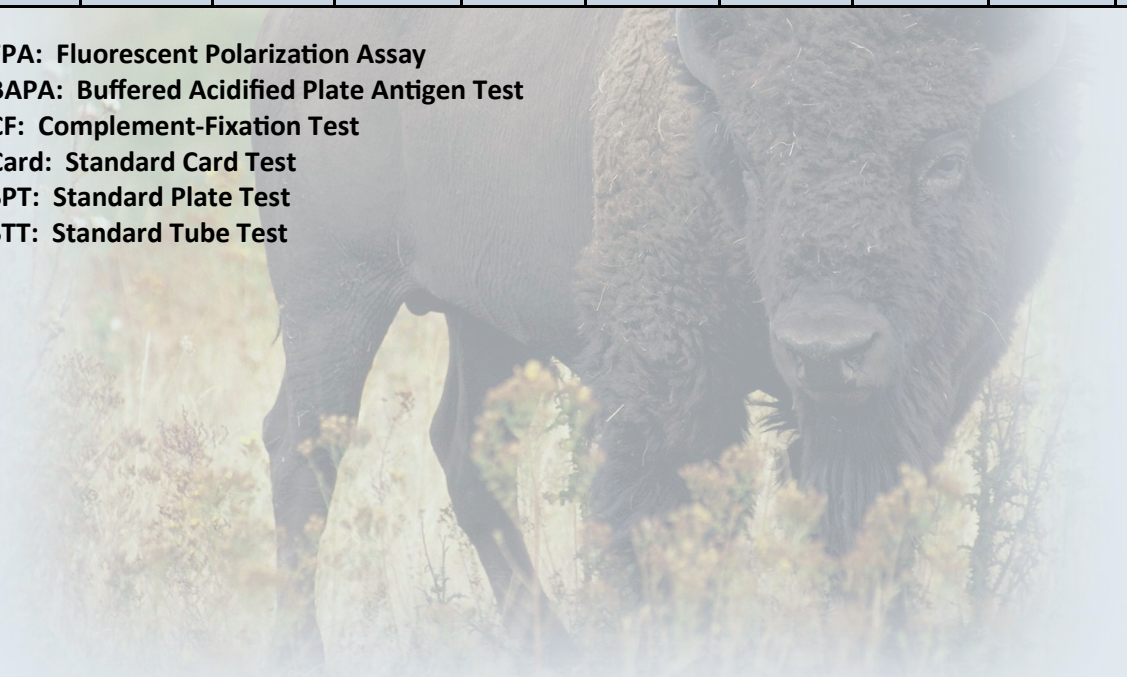


Fig. 8—Bison (Pexels.com)

F Y 2 2 C W D S U M M A R Y

In 2020, MVDL began testing for chronic wasting disease on behalf of Montana Fish Wildlife and Parks. This testing program helps serve the MVDL’s mission of protecting public health for Montana hunters. The following data represents the CWD tests performed by the MVDL In FY2022. The testing numbers below do not include re-tests for suspected positive samples (our standard practice) in order to more accurately reflect the actual number of animals tested.

Tests by Month	WT Deer	Mule Deer	Elk	Cervidae (Not Specified)	Total Tests
July	0	0	0	0	0
August	0	0	0	14	14
September	26	3	12	2	43
October	256	70	66	17	409
November	1,771	2,000	579	10	4,360
December	1,737	1,426	213	5	3,381
January	160	22	76	0	258
February	161	32	54	0	247
March	18	10	5	5	38
April	11	2	2	0	15
May	3	2	0	8	13
June	2	2	1	13	18
Total Tests	4,145	3,569	1,008	74	8,796

Species	Total Tests	Total Positives
White-tailed Deer	4,145	271
Mule Deer	3,569	76
Elk	1,008	0
Cervidae (not specified)	74	4
Total	8,796	351

Fig. 9—Elk (Pexels.com)

P R O F I C I E N C Y T E S T I N G

Montana Veterinary Diagnostic Laboratory (MVDL) technicians perform routine proficiency testing as a means of maintaining compliance with applicable regulations and assuring the integrity of MVDL testing methods and personnel. The following table summarizes proficiency tests completed in FY2022. In addition to proficiency testing, MVDL staff routinely participate in state and national exercises designed to increase preparedness for responding to a foreign animal disease outbreak.

FY2022 MVDL Proficiency Testing Participation	Lab Section
African Swine Fever virus PCR	Molecular Diagnostics
Anaplasmosis cELISA	Clinical Serology
Antibiotic and Bacterial Enumeration	Milk Program
Avian Influenza virus PCR	Molecular Diagnostics
Avian Influenza virus AGID/ELISA	Clinical Serology
Avian Paramyxovirus	Molecular Diagnostics
Bacterial Identification Terrestrial	Clinical Microbiology
Bluetongue Virus ELISA	Clinical Serology
Bovine Leukosis virus ELISA	Clinical Virology
Brucella canis Sero	Clinical Serology
Brucella ovis ELISA	Clinical Serology
Brucella abortus - SPT, BAPA, STT, CF, Riv, CARD, FPA	Clinical Serology
Chemistry Analysis	Clinical Pathology
Classical Swine Fever PCR	Molecular Diagnostics
Foot and Mouth Disease PCR	Molecular Diagnostics
Equine Infectious Anemia AGID	Clinical Serology
Electronic Messaging - FMD, PRV, ASF, CSF, IAV, VSV	VADDS/MVDL
Endocrinology Analysis	Clinical Pathology
Feline Leukemia virus SNAP	Clinical Virology
Feline Coronavirus SNAP	Clinical Virology
Feline Immunodeficiency virus SNAP	Clinical Virology
Heartworm ELISA	Clinical Microbiology
Hematology Analysis	Clinical Pathology
Interlaboratory Comparison	Clinical Pathology
Mycobacterium avium paratb (Johnes) ELISA	Clinical Serology
Mycobacterium avium paratb (Johnes) PCR, Individual	Molecular Diagnostics
Mycobacterium avium paratb (Johnes) PCR, Pooled	Molecular Diagnostics
Parasitological Identification	Clinical Microbiology
Pseudorabies virus gB ELISA	Clinical Virology
Clinical Pathology Quality Control	Clinical Pathology
Rabies virus DFA	Clinical Virology
Salmonella PCR	Molecular Diagnostics
Salmonella Group D and Serotype	Clinical Microbiology
Urinalysis	Clinical Pathology
Urine Identification	Clinical Pathology
Vesicular Stomatitis virus PCR	Molecular Diagnostics
Vesicular Stomatitis virus CF	Clinical Serology
virulent Newcastle Disease virus PCR	Molecular Diagnostics

Fig. 10—AAVLD logo

Fig. 11—VLA logo (VLA)

T E S T D A T A — S E R O L O G Y

Montana Veterinary Diagnostic Laboratory (MVDL) provides a comprehensive suite of serology test methods, with the majority of tests supporting the Brucellosis surveillance program managed by the Animal Health Bureau of the Department of Livestock and screening for Equine Infectious Anemia. The following table details the number of individual tests conducted in fiscal years 2021 and 2022 by test type.

Test Type	FY21	FY22
<i>Brucella abortus</i> FPA	106,695	98,581
<i>M. avium</i> subsp. paratuberculosis ELISA	5,712	5,782
EIA AGID (total)	4,966	5,291
<i>Brucella abortus</i> BAPA	15,754	4,909
EIA ELISA (total)	2,042	2,071
<i>Brucella ovis/canis</i> ELISA	72	1,078
Anaplasma cELISA	1,308	1,016
<i>Brucella abortus/suis</i> CF	966	583
<i>Brucella ovis</i> ELISA	714	480
CAE/OPP cELISA	307	397
Bluetongue ELISA	268	272
<i>Brucella canis</i> RSAT	194	264
Epizootic Hemorrhagic Disease (EHD) AGID	0	218
<i>Brucella abortus</i> STT (1:50)	224	212
<i>Brucella abortus</i> Card	247	197
<i>Brucella abortus</i> FPA (tube)	6	103
<i>Brucella abortus</i> SPT (1:50)	27	52
<i>Brucella canis</i> 2ME-RSAT	23	51
<i>Salmonella Pullorum</i>	64	40
<i>Brucella abortus</i> Rivanol	1	2
<i>Brucella abortus</i> STT (1:25)	0	1
Avian Influenza AGID	34	0
Serology Total	139,624	121,600

T E S T D A T A — V I R O L O G Y

Montana Veterinary Diagnostic Laboratory (MVDL) provides a broad spectrum of virology related diagnostics. The following table details the number of individual tests conducted in fiscal years 2021 and 2022 by test type. Chronic Wasting Disease and *Leptospira* testing are represented in the table below as these tests are performed by the virology lab section.

Test Type	FY21	FY22
Chronic Wasting Disease ELISA	8,275	9,090
Bovine Viral Diarrhea Virus ELISA	1,437	2,627
<i>Leptospira</i> (5 Routine Serovars)	1,448	1,392
Bovine Leukemia Virus ELISA	935	686
Bovine Herpesvirus 1 SN	790	595
Rabies - Small Animal	403	471
Parainfluenza Virus Type 3 Serum Neutralization	0	419
Bovine Viral Diarrhea Virus SN	600	398
Bovine Respiratory Syncytial Virus SN	539	354
<i>Leptospira</i> (7 Routine Serovars)	152	210
Pseudorabies ELISA	260	179
Giardia Rapid Immunoassay (SNAP)	0	100
Bovine Viral Diarrhea Virus Isolation	74	77
Heartworm ELISA	80	70
Vesicular Stomatitis (Ind) SN	44	59
Parainfluenza-3 HI	524	54
Vesicular Stomatitis (NJ) SN	44	59
Feline Infectious Peritonitis ELISA	57	49
<i>Leptospira Pomona</i> MAT	35	34
Rabies - Large Animal	20	32
FELV/FIV/Heartworm Combo Rapid Immunoassay (SNAP)	28	30
FeLV/FIV Combo Rapid Immunoassay (SNAP)	68	25
Coxiella burnetii (Q Fever) ELISA	0	25
<i>Neospora caninum</i> ELISA	13	22
West Nile Virus IgM ELISA	13	18
<i>Leptospira</i> Fluorescent Antibody	16	14
<i>Leptospira hardjo</i> MAT	1	13
Canine Distemper Virus Fluorescent Antibody	3	10
Rapid Visual Pregnancy Test	0	8
<i>Leptospira grippotyphosa</i> MAT	11	6

TEST DATA — VIROLOGY (CONT'D)

Test Type	FY21	FY22
<i>Leptospira Icterohaemorrhagiae</i> MAT	8	6
Canine Parvovirus Rapid Immunoassay (SNAP)	7	6
Feline Leukemia Virus Rapid Immunoassay (SNAP)	3	6
Bovine Viral Diarrhea Virus Fluorescent Antibody	8	3
Feline Panleukopenia Virus Fluorescent Antibody	1	3
Bovine Herpesvirus 1 Fluorescent Antibody	0	2
Bovine Respiratory Syncytial Virus Fluorescent Antibody	0	2
Canine Parvovirus Fluorescent Antibody	3	1
Feline Enteric Coronavirus Fluorescent Antibody	0	1
Equine Viral Arteritis Serum Neutralization	0	1
Canine Herpesvirus Fluorescent Antibody	0	1
<i>Leptospira canicola</i> MAT	0	1
Bovine Parainfluenza-3 Virus Fluorescent Antibody	9	0
<i>Leptospira bratislava</i> MAT	1	0
<i>Leptospira autumnalis</i> MAT	1	0
Virology Total	15,911	17,159



Fig. 12—Biological Safety Cabinet (Pexels.com)

TEST DATA — MICROBIOLOGY

The Montana Veterinary Diagnostic Laboratory offers a wide range of clinical microbiology services including microorganism isolation and identification. Additional services rendered by the microbiology lab section include antibiotic sensitivity screening and parasite identification. The following table lists the number of microbiology related tests performed in fiscal years 2021 and 2022.

Test Type	FY21	FY22
Aerobic Culture	1,375	1,549
<i>Campylobacter</i> Culture	1,466	1,244
<i>Tritrichomonas foetus</i> Culture	1,113	935
Fecal Flotation	606	642
Small Animal Antibiotic Sensitivity	441	611
<i>Salmonella enteritidis</i> Culture	347	298
Additional Isolate - Aerobic	301	288
Gram Stain	165	155
<i>Mycoplasma</i> Culture	140	136
Equine Antibiotic Sensitivity	145	118
<i>Brucella</i> Culture	88	89
<i>Salmonella</i> Culture	127	87
Anaerobic Culture	28	69
Bovine Antibiotic Sensitivity	55	61
Abortion Workup (all species)	37	58
Clostridial Rule-Out	48	53
<i>Cryptosporidia</i>	70	47
Neonatal Diarrhea Panel	68	46
Dermatophyte Culture	27	36
Direct Microscopic Exam	15	26
Fungal Culture	11	26
Occult Blood Test	15	12
Mastitis Antibiotic Sensitivity	10	10
<i>Giardia</i> antigen ELISA	94	7
Endoparasite Exam	4	5
Liver Fluke Sedimentation	4	5
<i>Trichinella</i> - Pepsin Degradation	4	5
Ectoparasite Exam	6	3
Additonal Isolate - Anaerobic	3	3
Acid Fast Exam	4	1
Microfilarial identification	4	1
<i>Giardia</i> Exam	0	3
Clinical Microbiology Total	6,821	6,639

TEST DATA

MOLECULAR DIAGNOSTICS (PCR)

Molecular diagnostics is an emerging area in the field of veterinary diagnostics due to the sensitivity and selectivity of these testing methods. Montana Veterinary Diagnostic Laboratory (MVDL) has a robust molecular diagnostics division that provides diagnostic testing for many potentially high consequence animal pathogens. The following table lists the total number of tests performed in fiscal year 2021 and 2022 within the molecular diagnostics section of the laboratory.

Test Type	FY21	FY22
<i>Tritrichomonas foetus</i> Individual PCR	1,669	1,668
<i>Tritrichomonas foetus</i> Pooled PCR	1,510	1,522
<i>Salmonella enteritidis</i> PCR Screen	1,061	1,136
<i>M. avium</i> subsp. paratuberculosis Pooled PCR	439	668
Avian Influenza A Matrix	103	500
<i>M. avium</i> subsp. paratuberculosis PCR	452	320
Avian Influenza H5	0	125
Bovine Viral Diarrhea Virus Individual PCR	14	86
Bovine Viral Diarrhea Virus Pooled PCR	62	57
Bovine Rotavirus / Coronavirus Multiplex PCR	75	51
<i>E. coli</i> K99 PCR	20	12
Avian Influenza H7	0	12
Avian Paramyxovirus-1 Matrix PCR	1	6
Rabbit Hemorrhagic Disease Virus PCR	3	4
Classical Swine Fever PCR	0	2
African Swine Fever PCR	0	2
Foot-and-Mouth Disease PCR	1	1
Swine Influenza Matrix PCR	0	1
Vesicular Stomatitis Virus Multiplex PCR	0	1
Molecular Diagnostics Total	5,410	6,174

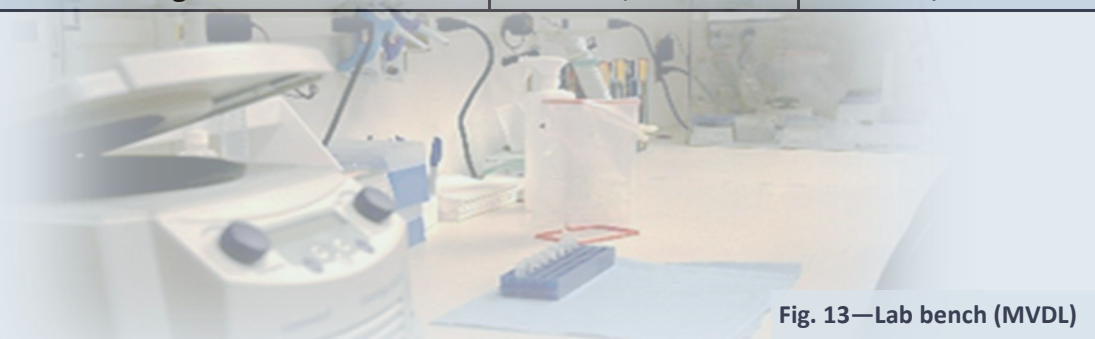


Fig. 13—Lab bench (MVDL)

TEST DATA CLINICAL PATHOLOGY

Clinical pathology at the Montana Veterinary Diagnostics Laboratory (MVDL) helps aid in disease diagnosis, treatment, and prevention via laboratory testing of blood and other biological fluids for a wide range of large and small animals. The following table lists the total number of tests performed in fiscal years 2021 and 2022 within the clinical pathology section of the laboratory (table continues on next page).

Test Type	FY21	FY22
Small Animal Chemistry Panel (canine)	1,132	713
Small Animal Complete Blood Count	1,063	668
Canine Clinical Profile	712	462
Large Animal Chemistry Panel	446	404
Canine Thyroid Panel	407	380
Large Animal CBC/Differential	323	309
Urinalysis	249	274
Large Animal Profile	265	259
Cortisol	221	200
Small Animal Chemistry Panel (feline)	296	193
Canine Total T4	282	184
Total T4	237	147
Phenobarbital	133	144
Feline Clinical Profile	127	86
ACTH Stimulation	120	85
Dexamethasone Suppression	95	84
Thyroid Panel	59	79
Nitrate	44	68
PLI	81	41
ALT	37	37
Cholesterol	37	37
Small Animal Hepatic Panel	28	34
Fluid analysis	36	32
Bile Acids	30	27
Feline Infectious Anemia	57	21
Feline Profile	54	21
Canine Health Screen	40	21
Small Animal Renal Panel	23	18
Prothrombin Time	17	18
Activated Partial Thromboplastin Time	16	15
Free T4	37	13
Equine Fitness Profile	9	12

CLINICAL PATHOLOGY (CONT'D)

Test Type	FY21	FY22
Feline Geriatric Panel	9	11
Equine IgG	4	9
Expanded Electrolytes Pan	9	7
Electrolytes	9	6
Large Animal Health Scree	8	6
TSH	8	6
Blood Count	6	5
Feline Health Screen	9	4
Coombs	9	3
Bovine IgG	2	3
Reticulocytes	2	3
AST/CKI	0	3
Blood Cross Match	0	3
Creatinine	0	3
Small animal Pre-anesthetic Panel	27	2
Total T3	15	2
Fibrinogen (Heat Precipitation)	3	2
Magnesium	3	2
Canine Endocrine Panel	2	2
Direct Bilirubin	1	2
BUN	0	2
Creatine Kinase	0	2
Feline Pancreatic Lipase Immunoreactivity	0	2
Small Animal Pre-anesthetic Profile	0	2
Hemotropic Parasite Screen	0	2
Gamma-glutamyl Transferase	1	1
Glucose	1	1
AST	0	1
ALP	0	1
Feline Anemia Panel	2	0
Phosphorous	2	0
CSF analysis	2	0
Amylase	1	0
Calcium	2	0
Clinical Pathology Total	6,881	5,184

Fig. 14—Centrifuge (Pexels.com)

TEST DATA — HISTOLOGY

The histology section of the laboratory provides sample processing for microscopic evaluation of tissues by pathologists. Histochemical stains help identify specific tissue and cellular components. The following table reports the number of cases that included routine (H&E) histologic processing and the number of individual special stains prepared during fiscal years 2021 and 2022.

Test Type	FY21	FY22
Hematoxylin & Eosin (number of cases)	2,082	2,134
CWD Tissue Processing	336	16
Duplicate H&E	220	135
Acid Fast (Ziehl Neelsen)	95	168
Gram (Brown & Brenn) HC	67	62
Giemsa	55	48
Grocott's Methenamine Silver	44	40
Masson's Trichrome	20	19
Acid Fast (Fite's)	19	29
Decalcification/ keratin treatment	16	23
Purl's Prussian Blue	14	10
Warthin-Starry	14	12
PAS	9	11
Von Kossa	8	7
Melanin Bleach	3	4
Toluidene Blue	0	4
Rhodanine	2	2
Congo Red	0	2
Fontana Masson	0	2
Alcian Blue	1	1
Turnbull Blue	0	1
Gram (Brown and Hopps)	3	0
Van Gieson	1	0
Mucicarmine	1	0
Steiner & Chapman	1	0
Histology Total	3,011	2,730

S E R V I C E D A T A — P A T H O L O G Y

The Montana Veterinary Diagnostic Laboratory offers a full spectrum of pathology services including large and small animal necropsies, abortion investigation, cytology, histopathology for surgical biopsies and necropsies, and other ancillary testing. Our board certified pathology staff is always available for consultation upon request. The following table shows a summary of pathology services performed in fiscal years 2021 and 2022.

Service	FY21	FY22
Histopathology (biopsy/mail-in)	1,991	2,015
Cytology	303	289
Necropsy (Livestock)	98	104
Necropsy (Other Species)	55	67
Case Material Return	31	34
Insurance/Legal case (hourly fee)	21	9
Spinal Cord Removal (Large Animal)	3	3
Spinal Cord Removal (Small Animal)	1	1
After Hours Carcass Receiving	0	1
Pathology Total	2,503	2,523



Fig. 16—Microscope (Pexels.com)



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