

MONTANA VETERINARY DIAGNOSTIC LABORATORY
BOZEMAN, MONTANA

ANNUAL REPORT # FISCAL YEAR 2014



DEPARTMENT OF LIVESTOCK
Montana Veterinary Diagnostic Laboratory
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MISSION STATEMENT

The Montana Department of Livestock Mission Statement is to control and eradicate animal diseases, prevent the transmission of animal diseases to humans and to protect the livestock industry from theft and predatory animals.

The Montana Veterinary Diagnostic Laboratory Mission Statement is dedication to the promotion of excellence in every aspect of our operation:

- ✦ To protect the public health, promote a compliant state dairy industry and assist in the control and prevention of zoonotic diseases
- ✦ To continue to meet World Organization for Animal Health (OIE) standards and American Association of Veterinary Laboratory Diagnosticians (AAVLD) accreditation requirements
- ✦ To fulfill requirements and surveillance duties directed by regulatory and guidance agencies
- ✦ To provide support and leadership for the Montana Department of Livestock Animal Health and Meat, Milk & Egg Divisions
- ✦ To promote the marketability and reproductive health of Montana livestock
- ✦ To support veterinarians, livestock producers and companion animal owners by continuously improving client service and satisfaction by providing high quality, cost effective testing,
- ✦ To provide a workplace which fosters employee well being, safety, effective communication and improvement of quality at the source through employee involvement and commitment

VISION

The Montana Veterinary Diagnostic Lab vision is to be recognized as a leader in achieving technical excellence and to be our client's best resource.

MESSAGE FROM THE DIRECTOR

The MVDL Annual Report FY 2014 is a compilation of test data from July 1, 2013 to June 30, 2014. I hope this information provides you with an understanding of laboratory operations and an appreciation for the diversity of testing done in the seven clinical laboratory sections. My staff and I are committed to fulfill our stated mission goals and to provide the services needed to assure both animal and public health. Please, feel free to contact us with any questions that you may have.

Respectfully,

A. W. Layton, DVM, DACVP

HISTORY

Funds for Montana's first animal lab were appropriated by the Montana Legislature to the Animal Sanitary Board in 1917. This lab was in the basement of the Live Stock building south east of the capitol, which was the first agency headquarters building on the capitol complex.

The Montana Veterinary Research Laboratory, at Montana State College in Bozeman, was organized in 1929, as a cooperative effort of the Montana Livestock Sanitary Board, the Montana Experiment Station, the Montana Stockgrowers Association, and the Montana Woolgrowers Association. The laboratory was established to investigate diseases of range cattle and sheep.

The needs of the livestock industry exceeded the space allowed for the lab and a new space was built. The building, named after Montana State Veterinarian Hadleigh Marsh, was constructed in 1961 and jointly financed by USDA/APHIS, Montana Department of Livestock and Montana State University at a cost of \$1million. The building was enlarged and renovated in 1996 by adding a new necropsy facility and additional office space. The Marsh Laboratory is shared with various Montana State University department faculty and the Montana Seed Laboratory.

Fifty years have passed since the lab was built and the lab is showing its age. In 2007, the American Association of Veterinary Laboratory Diagnosticians accreditation review considered the building to be inadequate and to not meet the standards for a modern veterinary diagnostic laboratory. In 2008, the Montana Legislature ordered a study to evaluate the needs of all state laboratories and any commonality these laboratories may share. A copy of this report can be reviewed here: <http://goo.gl/DFKblp>

This study determined that the laboratories of the MVDL and the Wildlife Laboratory of Fish, Wildlife and Parks are inadequate, antiquated and potentially unsafe for staff. The study recommended that these two agencies share a facility that could meet both agencies needs and common missions.

This year, MSU Facilities Services conducted a Facilities Condition Inventory of the Marsh Laboratory. The inventory addresses deficiencies in the following seven categories: safety; damage/wearout; codes/standards; environmental improvements; energy conservation; aesthetics; and building enhancements. Marsh Laboratory deficiencies in all categories increased from 29.8% in 2010 to 34.2% in 2013. In categories for safety and damage/wearout alone, Marsh Laboratory deficiencies are 25.7% compared to the average MSU state building of 6.9% and Marsh Laboratory is assessed by MSU to be in "very poor overall shape". Of great concern is this evaluation does not take into account the use of the building as a veterinary diagnostic laboratory that routinely handles biohazards and zoonotic agents.

Funds for a new laboratory were included in the bonding bill during the 2011 session. However, that bill failed to pass by one vote. Currently, the Department is working with MSU to develop plans for a new facility on the Innovation Campus just north of the current location. Funding options include: private investment, long-range planning appropriated by the legislature, or a combination of both. Loss of accreditation and loss of the lab is an unacceptable option. Support from the laboratory's customers, private veterinarians, vet clinics, ranchers, sportsmen, and the general public is vital to securing the future of the MDVL. With the growing consequences that disease has on livestock market ability, and the continuing need for surveillance in wildlife diseases, the MDVL holds a vital place in Montana's future.

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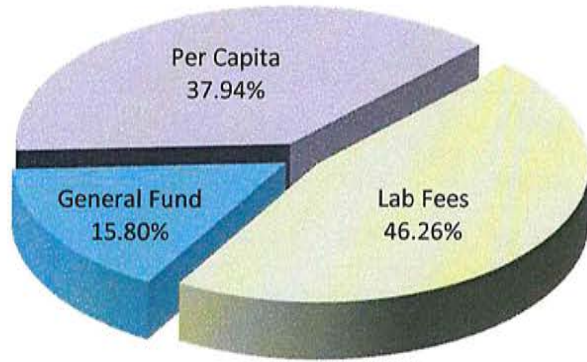
MVDL PERSONNEL

Pathologist/Veterinarian	Dr. A.W. Layton - Lab Director Dr. D.J. Marshall – Molecular R&D Coordinator Dr. S.K. Smith – Safety Officer
Information Technology	Jim Newhall
Quality Assurance	Tess Moore
Administrative Support	Janet Malcott – Office Supervisor Rachel Bravender – Administrative Assistant Michelle McReynolds – Administrative Assistant Cathy Ortega – Administrative Assistant Bruce Collins – Shipping & Receiving Clerk
Clinical Microbiology	Mary Ann Heagney – Section Supervisor Jayme Lehman – Clinical Lab Technologist Jessica Rogers – Clinical Lab Technologist
Clinical Pathology	Marie Tatarka – Section Supervisor Heather Carter-Devine – Clinical Lab Technologist
Clinical Serology	Antonio Fuentes Sanchez – Section Supervisor Sarah Horak – Clinical Lab Technologist Doug Knopp – USDA Microbiologist
Clinical Virology	Kathy Prokop – Section Supervisor Andy Blixt – Clinical Lab Technologist
Histopathology	Tresa Goins – Section Supervisor Joella Foust – Clinical Lab Technologist
Media Preparation	Jessica Rogers – Clinical Lab Technologist
Milk Lab	Julie Armstrong – Section Supervisor Sarah Horak – Clinical Lab Technologist
Molecular Diagnostics	Geoffrey Scholl – Section Supervisor Peggy Bunger – Clinical Lab Technologist

MVDL LABORATORY BUDGET

The total MVDL budget from all sources was \$1,834,499:

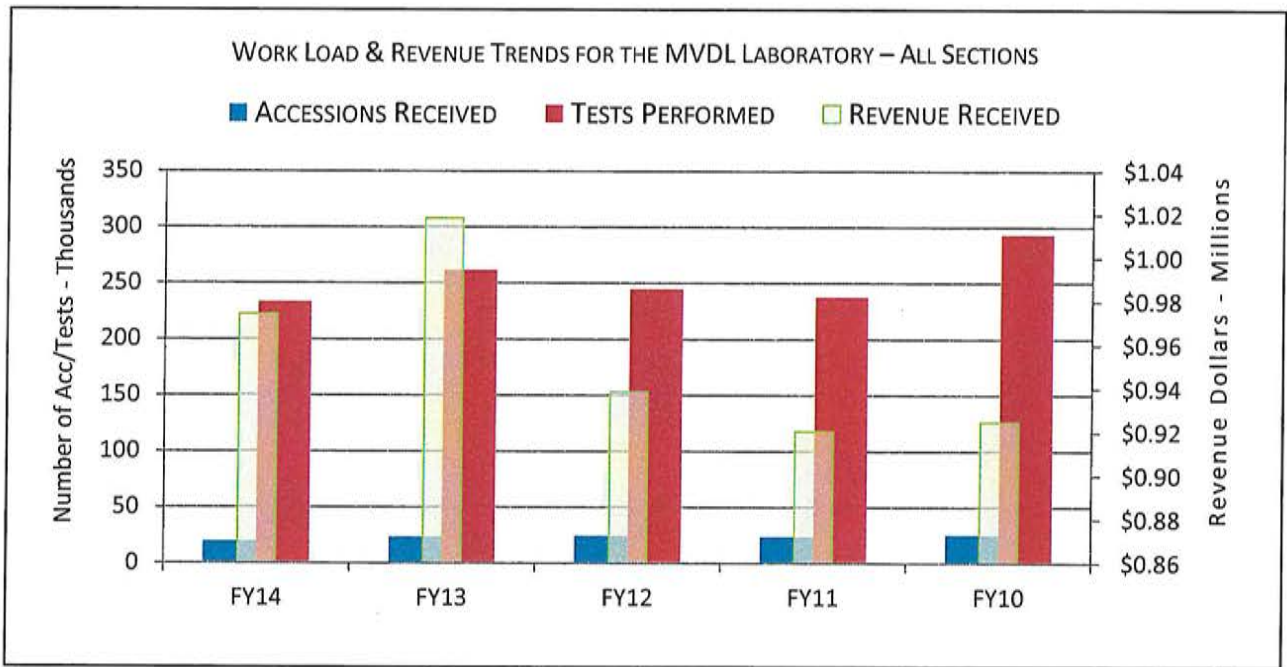
FUNDING SOURCE	AMOUNT
Lab Fees	\$ 848,619
Per Capita	\$ 696,056
General Fund	\$ 289,824
Total Funding	\$1,834,499



MVDL LABORATORY FIVE YEAR TRENDS

ACCESSIONS – TESTS - REVENUE

AN ACCESSION is a specimen(s) submitted by a single owner at a single point in time
 A TEST is each individual analysis performed; multiple tests may be performed on a single specimen



DISTRIBUTION OF TESTS PERFORMED BY SPECIES

NUMBERS OF TESTS PERFORMED – ALL SECTIONS										
(% FY TEST TOTAL) = PERCENT OF TESTS DONE DURING FY FOR ANY SINGLE SPECIES										
	FY 2014		FY 2013		FY 2012		FY 2011		FY 2010	
Bovine	93185	(66.1)	93587	(65.8)	63806	(54.6)	78524	(63.6)	124678	(72.9)
Equine	8137	(5.8)	9736	(6.8)	10983	(9.4)	9755	(7.9)	10556	(6.2)
Porcine	528	(0.4)	401	(0.3)	351	(0.3)	386	(0.3)	999	(0.6)
Ovine	1763	(1.3)	1157	(0.8)	1717	(1.5)	1485	(1.2)	1515	(0.9)
Feline	2812	(2.0)	3088	(2.2)	3375	(2.9)	3241	(2.6)	3294	(1.9)
Canine	8855	(6.3)	9247	(6.5)	9057	(7.8)	9460	(7.7)	9304	(5.4)
Avian	376	(0.3)	493	(0.3)	393	(0.3)	342	(0.3)	154	(0.1)
Wildlife	13483	(9.6)	13768	(9.7)	12929	(11.1)	11150	(9.0)	11268	(6.6)
Other	11762	(8.3)	10829	(7.6)	14187	(12.1)	9117	(7.4)	9143	(5.3)

DISTRIBUTION OF TESTS PERFORMED BY CATEGORY

NUMBERS OF TESTS PERFORMED – ALL SECTIONS										
(% FY TEST TOTAL) = PERCENT OF TESTS DONE DURING FY FOR LIVESTOCK, COMPANION ANIMALS AND OTHER										
	FY 2014		FY 2013		FY 2012		FY 2011		FY 2010	
Livestock	103613	(73.5)	104881	(73.7)	76857	(65.8)	90150	(73.0)	137748	(80.6)
Companion Animals	11667	(8.3)	12335	(8.7)	12432	(10.6)	12701	(10.3)	12598	(7.4)
All Other Species	25621	(18.2)	25090	(17.6)	27509	(23.6)	20609	(16.7)	20565	(12.0)

Livestock = Bovine, Equine, Porcine and Ovine

Companion Animals = Feline and Canine

All Other Species = Avian, Wildlife and Other (Other includes domesticated or farmed wildlife)

MVDL PROFICIENCY TESTING

Proficiency testing is a quality assurance program to validate diagnostic methods used in veterinary diagnostic laboratories. The agencies that administer proficiency tests for MVDL personnel include AAVLD, VLA, NVSL and NAHLN:



AMERICAN ASSOCIATION OF VETERINARY
LABORATORY DIAGNOSTICIANS



Veterinary Laboratory Agency



2014 PROFICIENCY TESTS COMPLETED

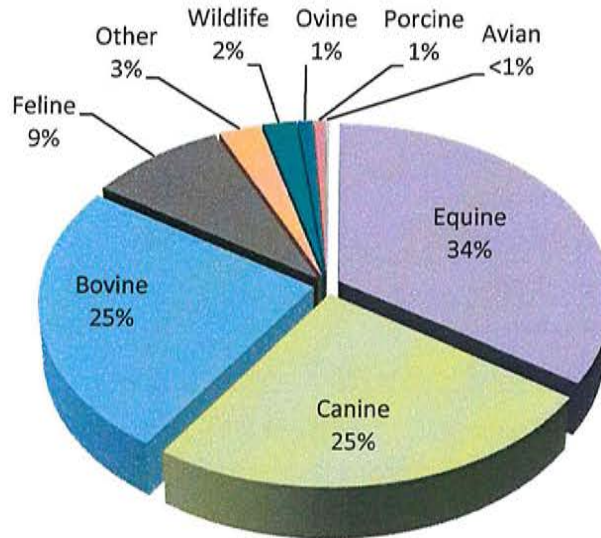
Anaplasmosis - ELISA	Clinical Serology
Avian Influenza Virus - AGID	Clinical Serology
Avian Influenza Virus Matrix - PCR	Molecular Diagnostics
Bluetongue Virus - AGID	Clinical Serology
Bovine Leukosis Virus - ELISA	Clinical Virology
<i>Brucella ovis</i> - ELISA	Clinical Serology
Brucellosis - CARD	Clinical Serology
Chemistry Panels	Clinical Pathology
Classical Swine Fever Virus - PCR	Molecular Diagnostics
Coagulation Assay	Clinical Pathology
Endocrine panels	Clinical Pathology
Equine Infectious Anemia - AGID	Clinical Serology
Foot & Mouth Disease - PCR	Molecular Diagnostics
Johne's Disease – <i>M. avium</i> paraTB - ELISA	Clinical Serology
Leptospirosis - Microagglutination	Clinical Virology
Pseudorabies – gB ELISA	Clinical Virology
Rabies – Fluorescent antibody	Clinical Virology
Ring Test - Immunohistochemistry	Histopathology
Swine Influenza H1N1 - PCR	Molecular Diagnostics
Vesicular Stomatitis Virus – Complement fixation	Clinical Serology

MVDL STATISTICAL REPORT – FY 2014

TOTAL ACCESSIONS

AN ACCESSION is a specimen(s) submitted by a single owner at a single point in time

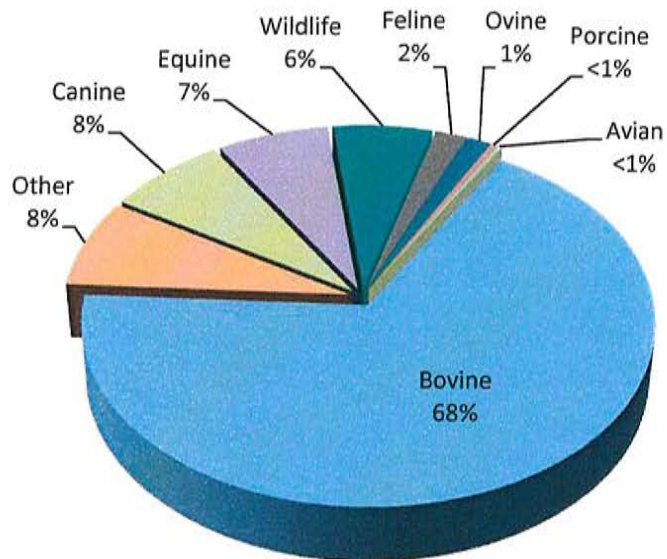
Species	Number of Accessions Received
Bovine	6005
Equine	8283
Porcine	190
Ovine	239
Feline	2146
Canine	6041
Avian	37
Wildlife	534
Other	664



TOTAL TESTS

A TEST is each individual analysis performed; multiple tests may be performed on a single specimen

Species	Number of Tests Performed
Bovine	91520
Equine	9390
Porcine	572
Ovine	1941
Feline	2743
Canine	10170
Avian	398
Wildlife	8371
Other	10577



MVDL ACCESSIONS RECEIVED FY 2014

	Bovine	Equine	Porcine	Ovine	Feline	Canine	Avian	Wildlife	Other	Total Accessions
Clinical Microbiology	850	301	8	50	312	1099	12	72	210	2914
Clinical Pathology	63	522	0	20	1224	2684	0	32	38	4583
Clinical Serology	2153	7279	88	115	0	31	5	86	244	10001
Clinical Virology	935	21	89	6	327	126	0	258	23	1785
Histopathology	436	160	5	48	283	2101	18	86	149	3286
Milk Lab	38	0	0	0	0	0	0	0	312	350
Molecular Diagnostics	1560	0	0	0	0	0	3	0	11	1574
Total Accessions	6035	8283	190	239	2146	6041	38	534	987	24493

MVDL TEST VOLUME FY 2014

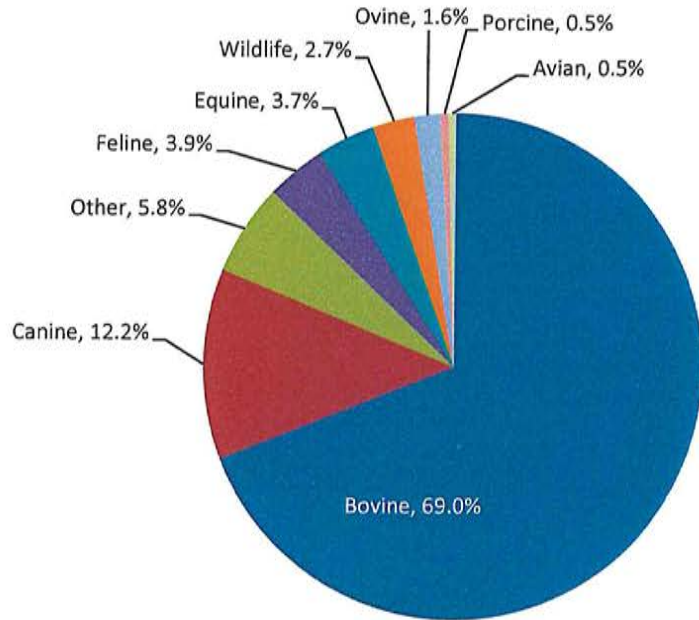
	ClinMicb	ClinPath	ClinSer	ClinVir	Histopath	Milk Lab	MolDiag	Referrals	Total Tests
Jul	581	611	2746	215	1117	335	187	105	5897
Aug	654	599	3658	597	839	1068	159	143	7717
Sep	785	504	5833	765	686	1021	120	747	10461
Oct	780	388	12087	375	1088	1024	226	184	16152
Nov	689	520	18389	492	1039	1002	859	624	23614
Dec	682	304	9630	534	961	820	917	96	13944
Jan	772	398	4463	706	886	796	559	103	8683
Feb	874	306	2983	483	767	871	579	69	6932
Mar	1201	463	5128	1117	921	685	2166	174	11855
Apr	1363	447	4109	536	949	963	2376	152	10895
May	677	353	4094	317	716	959	1828	309	9253
Jun	561	392	4938	147	696	919	802	98	8553
Total Tests	9619	5285	78058	6284	10665	10463	10778	2804	133956

CLINICAL MICROBIOLOGY – FY2014

CLINICAL MICROBIOLOGY – MVDL Section that supports the diagnosis of disease by isolation and identification of bacteria, fungi and parasites from fresh tissue samples.

CULTURE ISOLATION BY SPECIES

	Number of Accessions	Culture Isolations
Bovine	850	5908
Equine	301	319
Porcine	8	46
Ovine	50	141
Feline	312	332
Canine	1099	1044
Avian	12	40
Wildlife	72	231
Other	210	499
Total	2914	8560



DISTRIBUTION OF ADDITIONAL TESTS PERFORMED IN CLINICAL MICROBIOLOGY - FY 2014

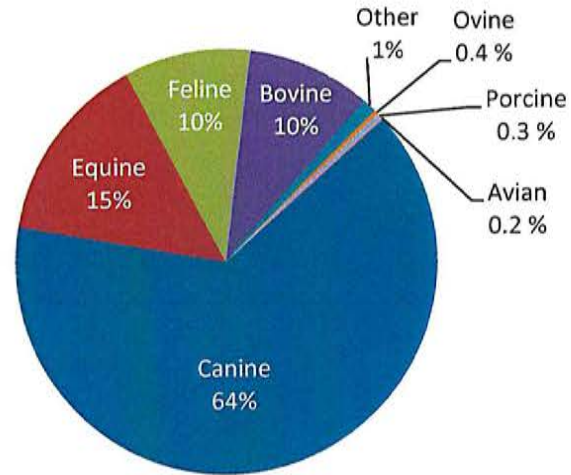
	Chlamydia	Coccidial Smear	Cryptosporidia	Fecal Floatation	Fungal Culture	Giardia	Gram Stain	Heartworm	Microscopy	Occult Blood	Parasites	Total Tests	% of Tests by Species
Bovine	5	10	183	181	1	-	182	-	-	2	1	565	39.43
Equine	-	-	2	87	15	-	10	-	3	3	1	121	8.44
Porcine	3	-	-	2	-	-	1	-	-	-	-	6	0.42
Ovine	4	3	-	22	-	-	11	-	-	-	1	41	2.86
Feline	-	2	1	28	4	11	9	4	1	-	1	61	4.26
Canine	-	4	4	100	47	32	219	100	2	-	2	510	35.59
Avian	-	-	-	4	2	-	1	-	1	2	-	10	0.70
Wildlife	-	-	1	10	-	-	8	-	2	-	3	24	1.67
Other	-	3	6	67	1	-	11	-	2	-	5	95	6.63
Total	12	22	197	501	70	43	452	104	11	7	14	1433	100

ANTIMICROBIAL SENSITIVITY OF CULTURE ISOLATES

Sensitivity is determined to assess best treatment options as the efficacy of antimicrobials changes with use over time.

SUSCEPTIBILITY TESTING BY SPECIES

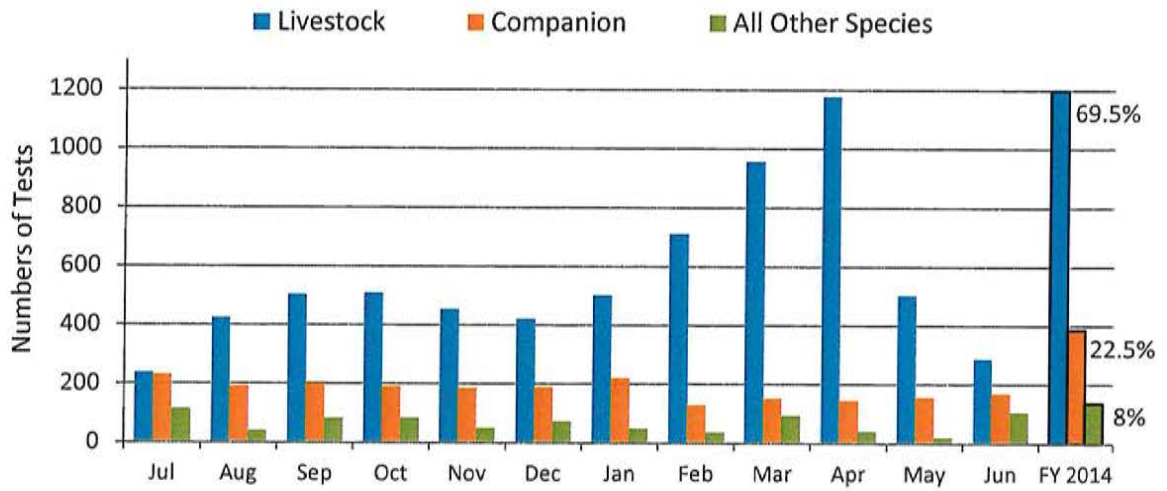
Species	Number of Test
Bovine	101
Equine	153
Porcine	3
Ovine	4
Feline	103
Canine	680
Avian	2
Wildlife	0
Other	11
Total	1057



ANTIMICROBIAL SUSCEPTIBILITY PROFILES	REPORTED AS % SUSCEPTIBLE																				
	Amikacin	Amox/Clav	Ampicillin	Ceftiofur	Cephalothin	Chloramphenicol	Clindamycin	Danofloxacin	Enrofloxacin	Erythromycin	Florfenicol	Gentamicin	Novobiocin	Penicillin	Penicillin/Novobiocin	Pirlimycin	Tetracycline	Ticarcillin	Tilmicosin	Trimethoprim/Sulfa	Tulathromycin
<i>Escherichia coli</i>	97	88	76	61	39	95	1	78	95	0	67	98	NI	0	NI	NI	81	89	33	93	89
<i>Histophilus somni</i> *	NI	NI	100	100	100	NI	NI	50	100	NI	100	NI	NI	50	50	NI	50	NI	75	50	100
<i>Mannheimia haemolytica</i>	NI	NI	94	100	100	NI	NI	85	90	17	100	83	NI	95	NI	NI	91	NI	86	100	100
<i>Pasteurella multocida</i>	50	100	95	100	93	100	0	NI	17	0	NI	74	NI	0	NI	NI	3	33	NI	5	NI
<i>Pseudomonas aeruginosa</i>	86	0	0	0	0	0	0	NI	17	0	NI	74	NI	0	NI	NI	3	33	NI	5	NI
<i>Salmonella</i> spp. "O" grb B *	NI	NI	0	100	NI	NI	NI	100	100	NI	NI	NI	NI	NI	NI	NI	NI	NI	NI	100	NI
<i>Staphylococcus aureus</i>	90	94	70	97	100	90	90	89	100	74	100	95	88	66	100	100	97	NI	100	96	100
<i>S. intermedius/pseudintermedius</i>	99	98	33	NI	98	99	90	NI	93	84	NI	93	NI	19	NI	NI	70	NI	NI	87	NI
<i>Streptococcus equi</i> spp. <i>equi</i>	NI	NI	100	92	NI	NI	NI	NI	NI	77	NI	54	NI	100	NI	NI	85	NI	NI	92	NI
<i>Streptococcus canis</i>	6	100	100	NI	98	30	49	NI	17	74	29	29	NI	100	NI	NI	6	NI	NI	95	NI

* Four isolates; NI = not included

SEASONAL DISTRIBUTION OF TESTS PERFORMED



Livestock = Bovine, Equine, Porcine and Ovine

Companion Animals = Feline and Canine

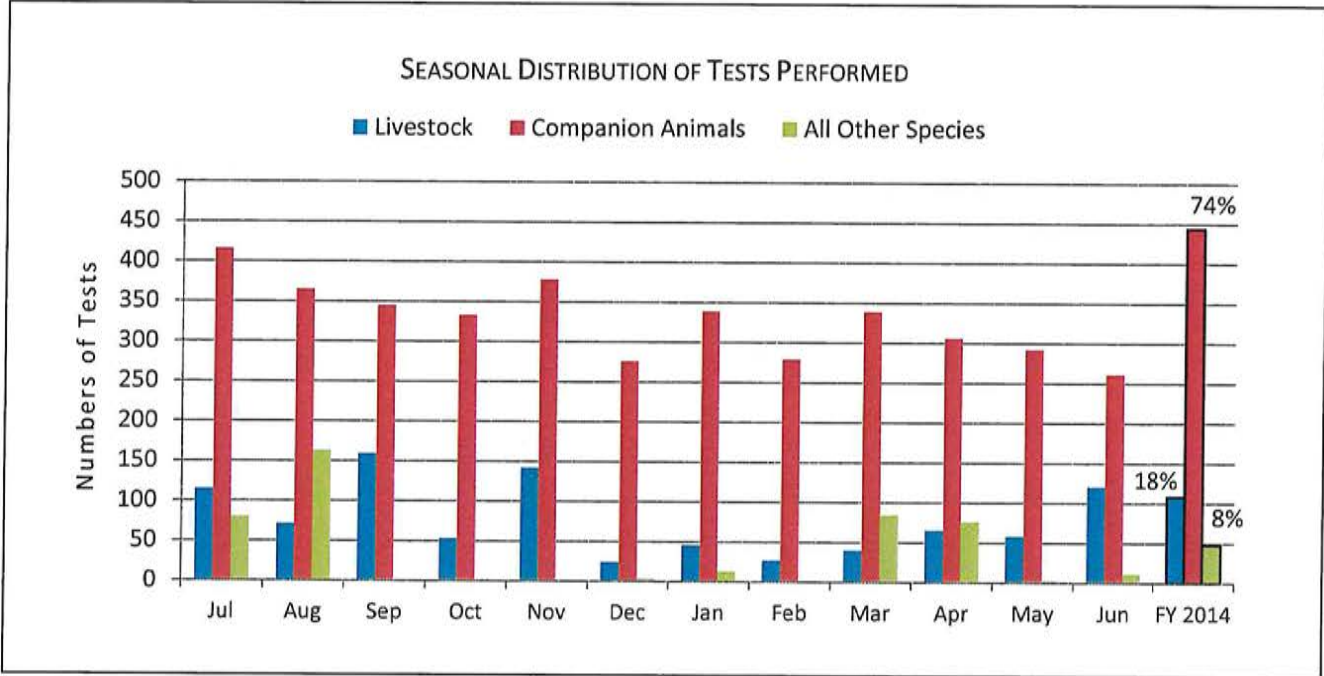
All Other Species = Avian, Wildlife and Other (Other includes domesticated or farmed wildlife)

CLINICAL PATHOLOGY – FY 2014

CLINICAL PATHOLOGY – MVDL Section that supports the diagnosis of disease using laboratory testing of blood and other bodily fluids, tissues, and the microscopic evaluation of individual cells

DISTRIBUTION OF ACCESSIONS AND TESTS PERFORMED

		Bovine	Equine	Ovine	Feline	Canine	Wildlife	Other	Total
Accessions		63	522	20	445	732	1	7	1790
Test	BC	1	11	304	18	17	1	-	352
	CBCD	7	65	4	64	228	62	108	538
	CEP	-	-	-	-	3	-	-	3
	COAG	-	-	-	2	16	-	-	18
	CTP	-	-	-	-	424	-	-	424
	EFP	-	9	-	-	-	-	-	9
	FADR	-	-	-	67	-	-	-	67
	FAP	-	-	-	4	-	-	-	4
	FIBR	-	1	-	-	-	-	-	1
	FTP	-	-	-	62	-	-	-	62
	LACP	38	313	5	-	-	-	15	371
	LAH	-	1	-	-	-	37	-	38
	LAHS	1	6	-	-	-	-	-	7
	LAP	19	32	3	-	-	1	2	57
	LAPA	-	1	-	-	-	-	-	1
	LYTE	1	-	1	1	19	-	-	22
	SACP	-	-	-	280	769	9	10	1068
	SAH	-	-	-	9	76	8	-	93
	SAHS	-	-	-	30	66	-	-	96
	SAP	-	-	-	125	248	28	-	401
	SAPA	-	-	-	13	48	-	-	61
	SAR	-	-	-	22	31	-	-	53
	THY	-	21	-	97	1	45	-	164
UA	-	-	-	2	7	-	-	9	
Misc.	3	70	4	448	741	1	109	1376	
Total Tests		70	530	321	1244	2694	192	244	5295
% Tests by species		1.32	10	6	23.5	51	3.6	4.6	100



NUMBERS OF TESTS PERFORMED ON WILDLIFE AND OTHER SPECIES IN DISTRIBUTION:

Species	Numbers of Tests	Species	Numbers of Tests
Wildlife		Other	
Moose	82	Mouse	211
Elk	45	Goat	17
Grizzly Bear	40	Monkey	9
Bison	13	Ferret	2
Wolf	10	Alpaca	1
Black Bear	2	Bison	1
		Llama	1
		Rabbit	1

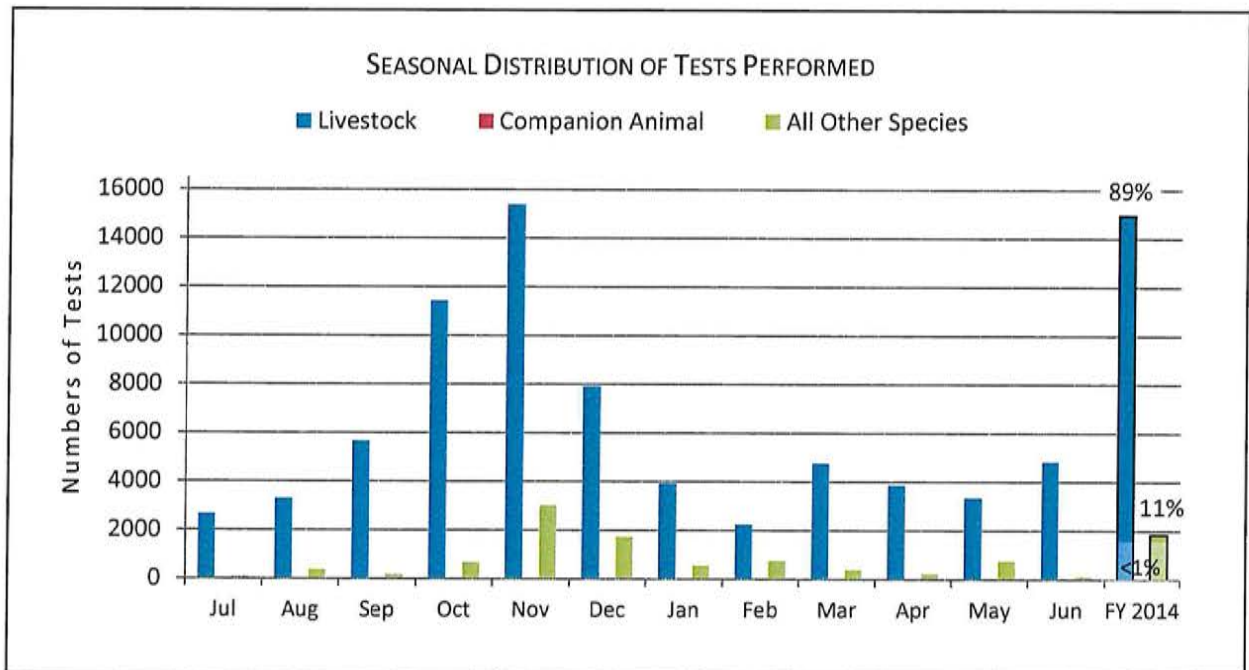
CLINICAL SEROLOGY – FY 2014

Clinical Serology – MVDL Section that supports the diagnosis of disease using plasma and other body fluids to detect a pathogen or host products produced in response to exposure to the pathogen

		DISTRIBUTION OF ACCESSIONS AND TEST PERFORMED								
		Bovine	Equine	Porcine	Ovine	Canine	Avian	Wildlife	Other	Total
Number of Accessions		2153	7279	88	115	31	5	86	244	10001
Test	ANA Elisa	483	-	-	-	-	-	223	164	870
	B canis	-	-	-	-	31	-	3	-	34
	B ovis	-	-	-	904	-	-	115	1	1020
	BRU BAPA	4460	22	1	6	-	-	565	312	5366
	BRU CARD	257	2	96	6	-	-	472	391	1224
	BRU CF	929	-	-	2	-	-	462	1	1394
	BRU FP	3914	-	16	2	-	-	1214	5409	10555
	BRU RAP	50230	-	109	-	-	-	686	1485	52510
	BRU RIV	13	-	-	-	-	-	887	103	1003
	BRU STP 25	2	-	-	-	4	-	635	-	641
	BRU STP 50	406	-	-	-	-	-	-	8	414
	BRU STT 25	-	-	-	-	-	-	112	-	112
	BRU SST 50	262	-	-	-	-	-	-	-	262
	BT Elisa	857	-	-	6	-	-	357	181	1401
	CAE AGID	-	-	-	-	-	-	-	5	5
	CAE OPP	-	-	-	43	-	-	61	133	237
	EHD	562	-	-	1	-	-	653	183	1399
	EIA AGID	-	6552	-	-	-	-	-	-	6552
	EIA Elisa	-	1064	-	-	-	-	-	-	1064
	OPP AGID	-	-	-	-	-	-	55	-	55
	PTB Elisa	4368	-	-	5	-	-	11	45	4429
	S pullorum	-	-	-	-	-	162	-	-	162
Total Tests		66743	7640	222	975	35	162	6511	8421	90709
% Tests by Species		74	8.4	0.2	74	<1	0.2	7.2	9.3	100

BRUCELLA ABORTUS TESTS PERFORMED

Species	Number of Tests	Number of Positives	% Positive Tests
Bovine	60795	5	0.01
Bison - Farmed	6085	9	0.15
Bison - Wild	749	159	21.23
Elk - Farmed	418	0	0
Elk - Wild	359	30	8.36
Porcine	206	0	0
Bighorn Sheep	115	0	0
Moose	102	0	0
Equine	92	0	0
Ovine	59	0	0
Goat - Farmed	45	0	0
Alpaca	42	0	0
Llama	36	0	0
Grizzly Bear	25	7	28
Camel	14	0	0
Black Bear	3	0	0



NUMBERS OF TESTS PERFORMED ON
WILDLIFE AND OTHER SPECIES IN DISTRIBUTION

Accession	Species	Number of Tests
Wildlife	Bison	966
	Elk	359
	Big Horn Sheep	115
	Moose	103
	Deer	70
	Grizzly	25
	Wolf	19
	Black Bear	3
	Antelope	3
	Other	Bison
Elk		423
Goat		180
Alpaca		42
Llama		36
Camel		14

CLINICAL VIROLOGY – FY 2014

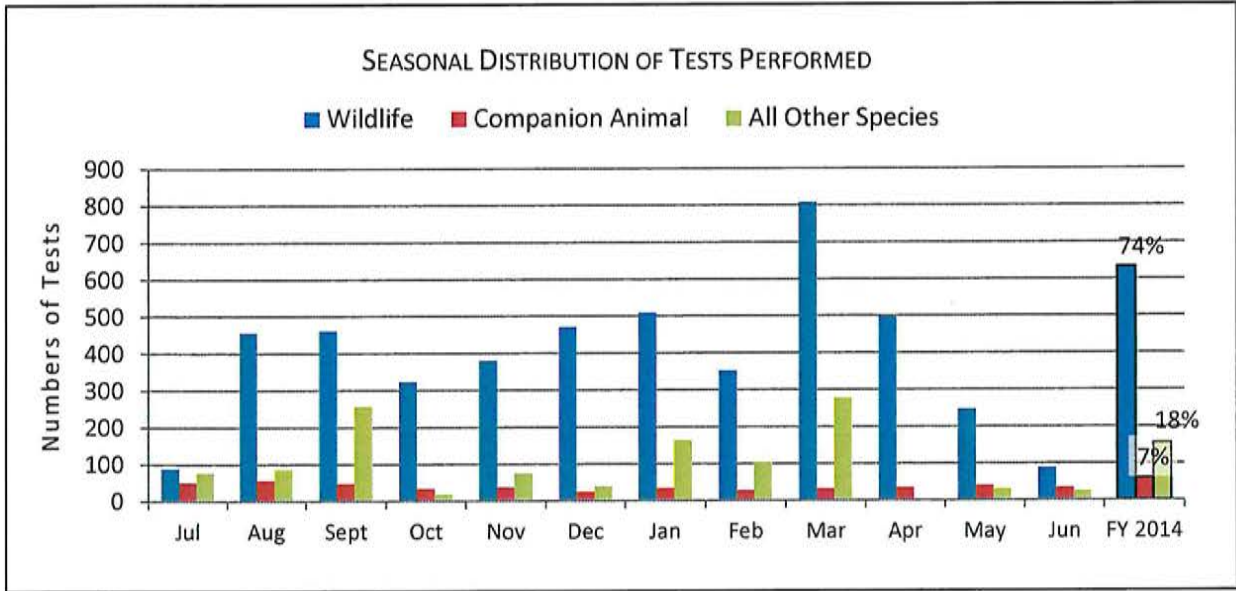
Clinical Virology – MVDL Section that supports the diagnosis of disease using microscopic evaluation and tissue culture to isolate and identify the viral cause of disease

DISTRIBUTION OF ACCESSIONS AND TESTS PERFORMED

	Bovine	Equine	Porcine	Feline	Canine	Wildlife	Other	Total
Number of Accessions	935	21	89	327	126	258	23	1785
Test								
Bovine Coronavirus	5	-	-	-	-	-	-	5
Bovine Leukemia Virus	1227	-	-	-	-	1	-	1228
Bovine Respiratory Syncytial Virus	18	-	-	-	-	370	-	388
Bovine Viral Diarrhea	3771	-	-	-	-	1037	365	5173
Feline Leukemia Virus	-	-	-	227	-	-	-	227
Feline Herpesvirus	-	-	-	1	-	-	-	1
Feline Infectious Peritonitis	-	-	-	109	-	-	-	109
Feline Immunodeficiency Virus	-	-	-	-	-	-	-	103
Infectious Bovine Rhinotracheitis	614	-	-	-	-	376	180	1170
Canine Distemper Virus	-	-	-	-	-	3	-	3
Canine Parvovirus	-	-	-	-	83	2693	759	3535
Leptospirosis	5174	51	-	-	10	3	2	5240
Parainfluenza	11	-	-	-	-	364	141	516
Pseudorabies	-	-	209	-	-	-	-	209
Rotavirus	159	3	1	-	2	1	1	167
Vesicular stomatitis	26	6	-	-	-	-	-	32
Total Tests	11940	81	299	767	221	5106	1471	19891
% Tests by Species	60	0.4	1.5	3.8	1.1	25.7	7.4	100

NUMBERS OF RABIES TESTS PERFORMED AND RESULTS BY SPECIES

	Bat	Canine	Feline	Skunk	Bovine	Raccoon	Equine	Ovine	Other	Black Bear	Grizzly Bear	Goat	Rat	Muskrat	Mountain Lion	Squirrel	Wolf	Bobcat	Captive Bear	Ferret
Number of Tests	170	106	102	20	18	15	7	5	5	2	2	2	2	1	1	1	1	1	1	1
Positive Tests	18	1	1	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Indeterminate	17	2	0	0	0	0	1	0	0	0	2	0	0	1	0	0	1	0	0	0
Human Exposure	44	97	92	3	7	1	5	-	-	1	1	1	1	-	1	1	-	1	-	1



NUMBERS OF TESTS PERFORMED ON WILDLIFE AND OTHER SPECIES IN DISTRIBUTION

Accession	Species	Number of Tests
Wildlife	Elk	1487
	Bighorn Sheep	1150
	Bison	729
	Moose	670
	Deer	491
	Grizzly Bear	125
	Wolf	97
	Antelope	28
	Black Bear	17
	Fox	14
Other	Bison	970

HISTOPATHOLOGY – FY 2014

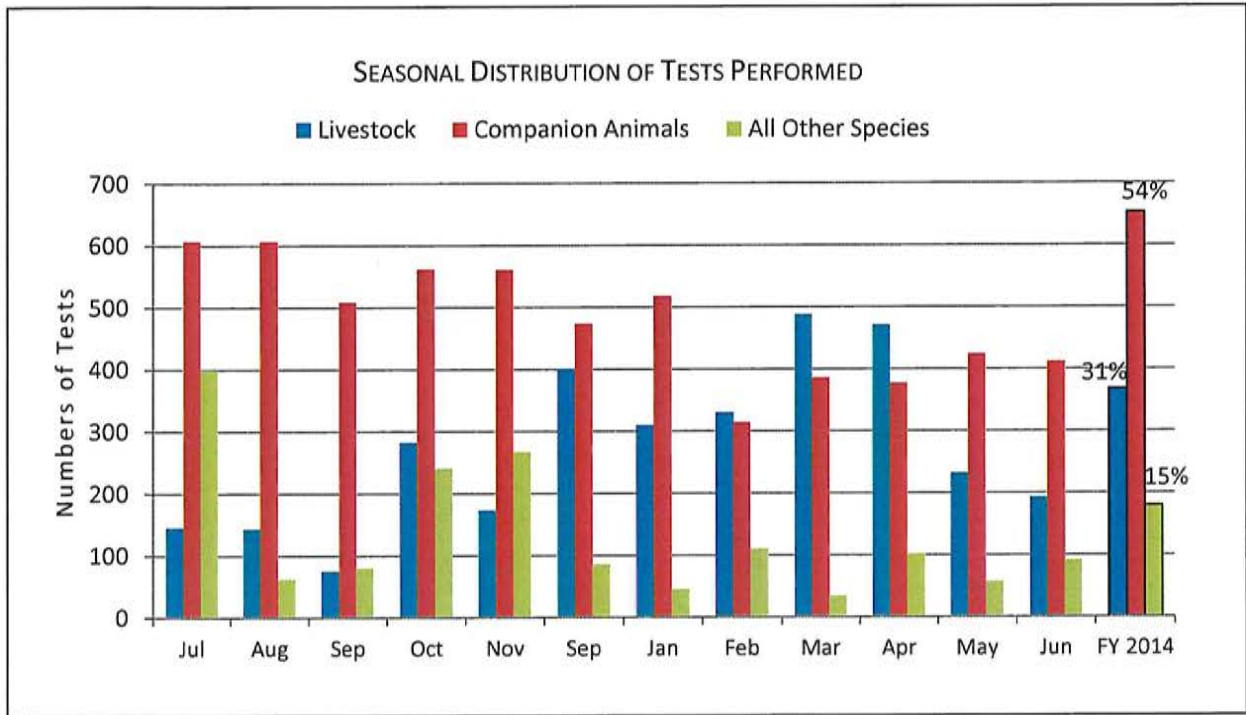
HISTOPATHOLOGY – MVDL Section that supports the diagnosis of disease using the microscopic evaluation of fixed tissue samples

DISTRIBUTION OF ACCESSIONS AND TESTS PERFORMED

	Bovine	Equine	Porcine	Ovine	Feline	Canine	Avian	Wildlife	Other	Total
Number of Accessions	436	160	5	48	283	2101	18	86	149	3286
Tissues Embedded	4587	893	158	993	1035	6505	443	856	1462	16932
Slides – H&E Stain	1945	481	76	397	527	3840	150	414	986	8816
Histochemical Stains	57	55	6	23	70	511	14	17	65	818
Immunohistochemical	19	8	0	4	14	97	0	4	1	147
Quality Assurance Slides	76	63	6	27	84	608	14	21	66	965
Total Tests (Slide # Only)	2097	607	88	451	695	5056	178	456	1118	10746
% Tests by Species	20	6	1	4	6	47	2	4	10	100

NUMBERS OF ADDITIONAL PATHOLOGY TESTS PERFORMED

Necropsy	105
Neonatal Diarrhea Study	162
Abortion Study	124
Transmissible Spongiform Encephalopathy: Obex and Lymph Nodes for Referral Testing	176



NUMBERS OF TESTS PERFORMED ON
WILDLIFE AND OTHER SPECIES IN DISTRIBUTION

Avian	178
Wildlife	456
Other	1118

MILK LAB – FY 2014

Milk Lab – MVDL Section supports dairy producers and processors by ensuring the products meet all requirements of the Agricultural Marketing Service regarding bacteriological and chemical standards.

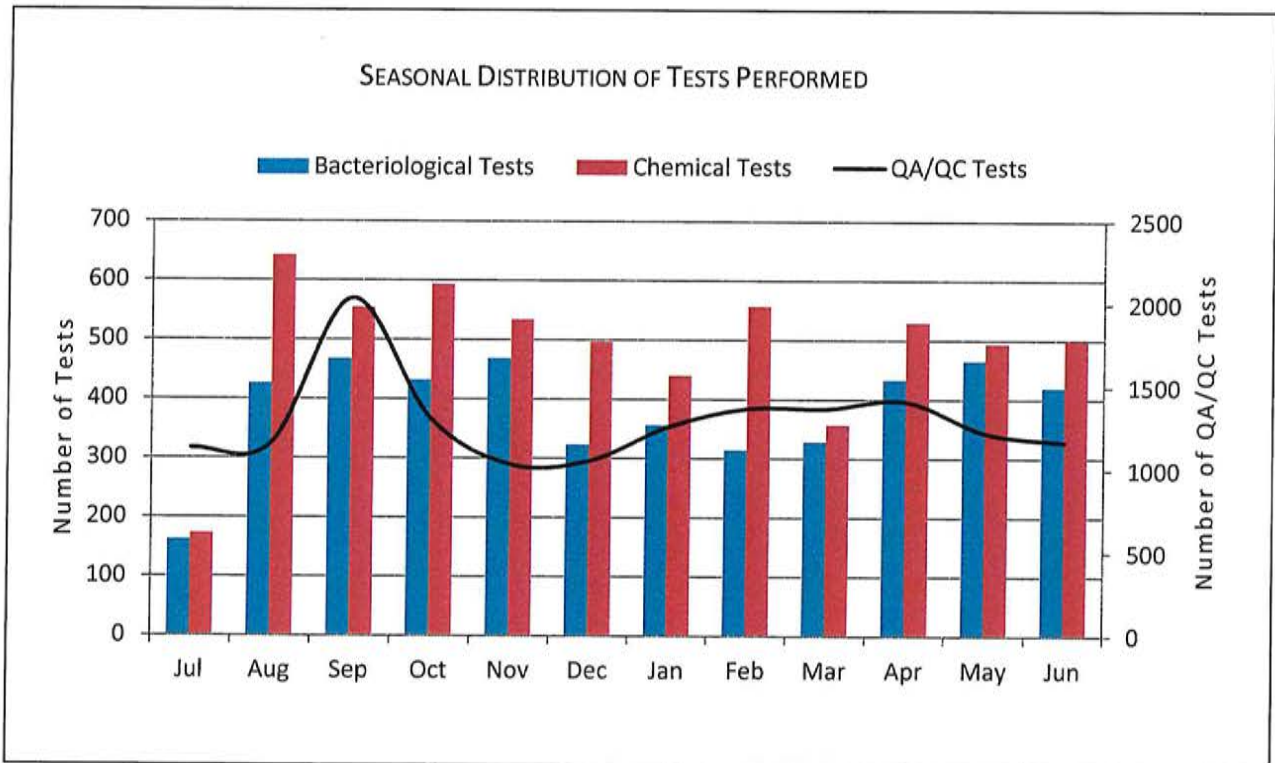
TYPES OF TESTS PERFORMED

BACTERIOLOGICAL TESTS:

- Standard plate count
- Coliform count
- Antibiotic detection
- Somatic cell count
- Brucella abortus ring test
- Brilliant green bile
- Yeast and mold

CHEMICAL TESTS

- Butterfat
 - Solids - no fat
 - Total solids
 - Protein
 - Lactose
 - Added water
 - Pesticides
 - Moisture
 - Phosphate
 - Salt and curd
-

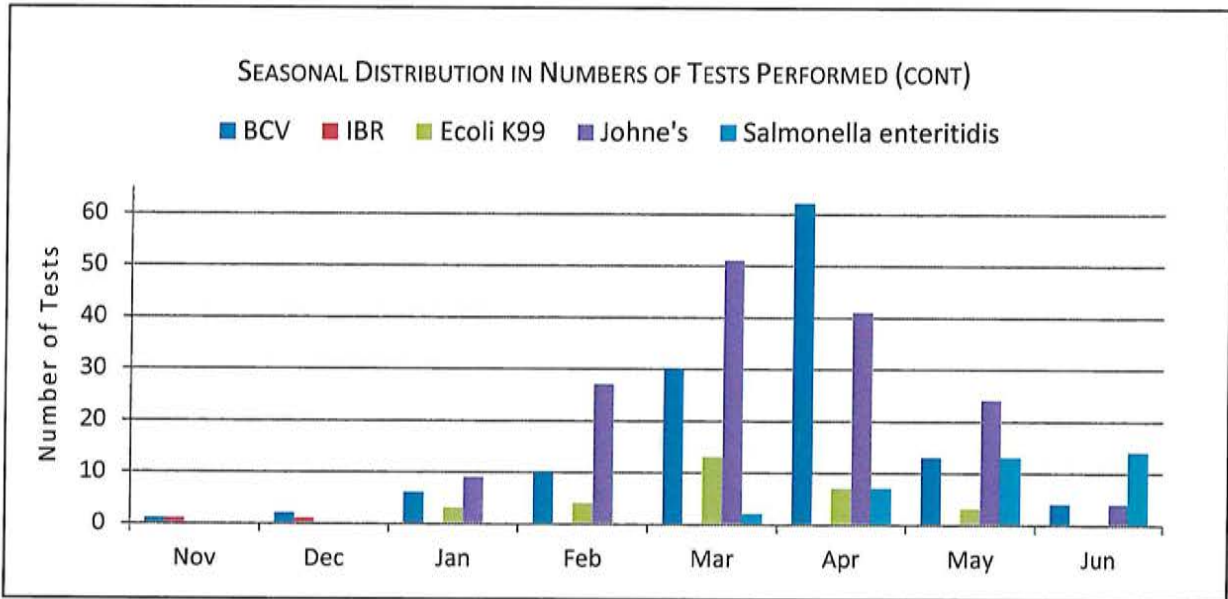
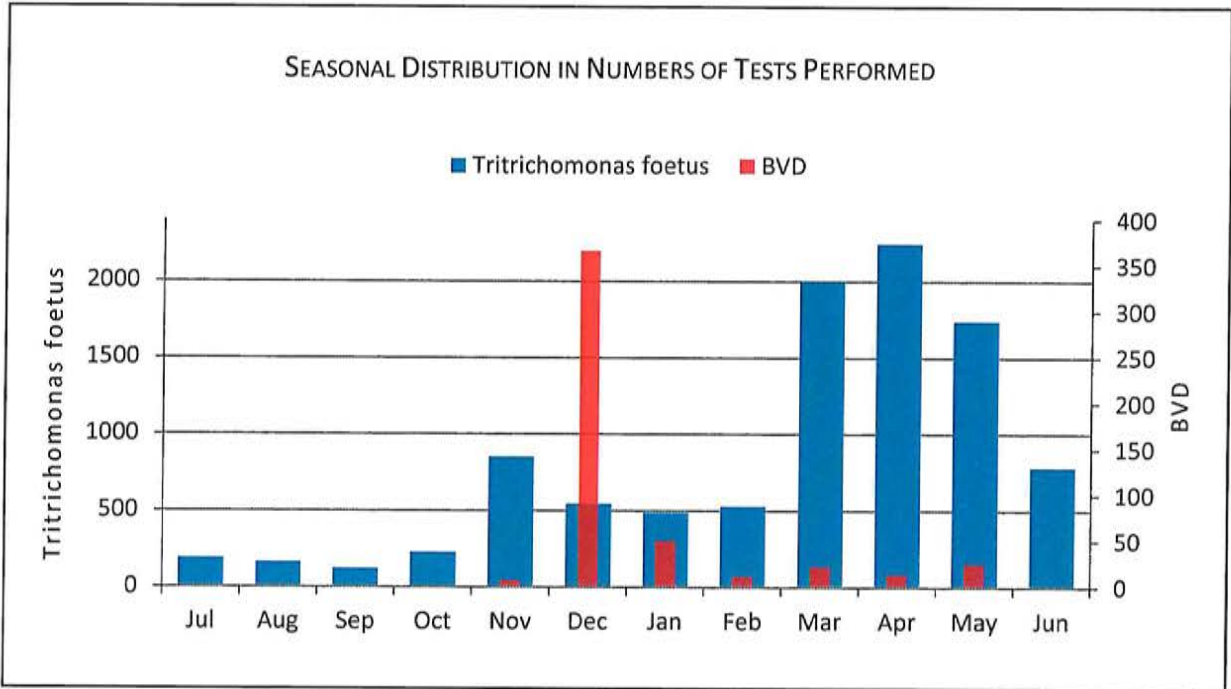


MOLECULAR DIAGNOSTICS – FY 2014

Molecular Diagnostics – MVDL Section that supports the diagnosis of disease using the amplification of unique genetic sequences to detect the presence of a pathogen

NUMBERS OF TESTS PERFORMED AND TEST RESULTS

	Accession Number	Sample Number	Positive Results	Negative Results	Inconclusive Results	Specimen Unsuitable
BVD Ear Notch	6	490	0	490	0	0
BVDv PCR	58	82	0	82	0	0
<i>Coronavirus</i>	123	137	41	96	0	0
<i>E. coli</i> K99	28	31	1	30	0	0
IBR	2	2	0	2	0	0
Johne's	50	159	37	119	3	0
<i>Tritrichomonas foetus</i>	1327	10719	0	10608	0	108
Avian Influenza	2	9	0	9	0	0
Salmonella Enteritidis	12	42	0	42	0	0



BCV – Bovine Coronavirus
 BVD – Bovine Viral Diarrhea
E. coli K99 – enterotoxigenic *Escherichia coli*
 IBR – Infectious Bovine Rhinotracheitis/Bovine Herpesvirus Type 1
 Johne's – *Mycobacterium avium* subsp. *paratuberculosis*

