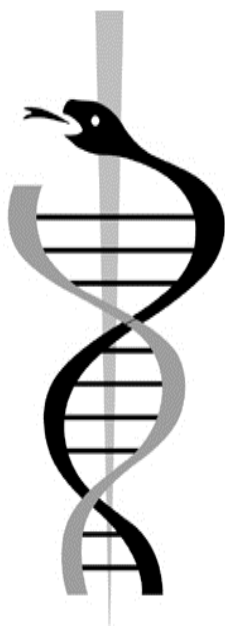


COLORADO STATE UNIVERSITY VETERINARY DIAGNOSTIC LABORATORIES

ANNUAL REPORT 2010



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Animal Diagnostic Laboratory
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Phone 970/243-0673 Fax 970/242-0003**

MISSION STATEMENT

The mission of Colorado State University Veterinary Diagnostic Laboratories is to provide timely, accurate and pertinent animal disease diagnostic services and educational outreach to veterinarians, animal industries and animal interests. The Diagnostic Laboratory also will strive to meet the goals of the College of Veterinary Medicine and Biomedical Sciences, and the University by contributing to research to develop new approaches to disease identification, investigation, and prevention and by contributing to the education of professional veterinary medical, graduate, undergraduate, and post-doctoral students.

MESSAGE FROM THE DIRECTOR:

Every year, we assemble a summary of the activities of the CSU Veterinary Diagnostic Laboratory. We hope you find this information interesting and of use. The activities of the faculty and staff are listed by the calendar year 2010. The testing and disease statistics are by the fiscal year July 1, 2009 to June 30, 2010. Data from all three laboratories of the system are included although listed separately. Our goal, as always, is to provide quality timely service and meet our Mission as stated above. Please do not hesitate to contact us about this annual report or any other issue.

Respectfully,

Barbara E. Fowes

DIAGNOSTIC LABORATORY PERSONNEL

FORT COLLINS	Barbara Powers, DVM/ PhD/DACVP	Director
Office Staff	Jay Kammerzell	Business Manager
	Carrie Schmer	Computer Services
	Helen Koh	Computer Services
	Nancy Ault	Office Manager/Receiving
	Elaine Andersen	Word Processing/Special Projects
	Emma Groves	Sample Receiving
	Mary Lindburg	Word Processing/Admin Asst
	Michelle McHugh	Client Services
	Lisa Monzingo	Asst. Business Manager
	Connie Heighes	Accounting
	Katie Leber	Client Services/Phone
	Kim Speaker	Sample Receiving
	Tina Kane	Office Manager/Client Services
	Deirdre Triplett	Client Services/Phone
	Deanna Bishop	Sample Receiving
	Ivy Ho	Sample Receiving
	Jan Roberts	Word Processing
	Kaye Williams	Word Processing
	John Maulsby, DVM	Case Coordinator
Avian Diagnostics and BSL3 Operations	Kristy Pabilonia, DVM/DACVM	Section Head
	Christina Weller	Microbiologist
	Sarah Millonig	Avian Program Assistant
	Nicole Malone	Avian Program Assistant
	Jeruesha Nichols	Avian Program Assistant
	Katie Slota	Avian Program Assistant
Chemistry/Toxicology	Dwayne Hamar, PhD	Section Head
	Cathy Bedwell	Chemist
Endocrinology & Special Serology	Mike Lappin, DVM/PhD/DACVIM	Lab Supervisor
	Melissa Brewer	Research Associate
	Jennifer Hawley	Research Associate
	Arienne Morris	Research Associate
Microbiology	Hana Van Campen, DVM/PhD/DACVM	Virology Section Head
	Doreene Hyatt, PhD	Bacteriology Section Head
	Denise Bolte	Microbiologist
	Monica Estay	Microbiologist
	Cindy Hirota	Microbiologist
	Jean Muirhead	Microbiologist
	Mike Russell	Microbiologist
	Barbara Traut	Microbiologist
	Anita Schiebel	Microbiologist
	Gayle Thompson	Microbiologist
	Christina Gates	Microbiologist
	Kathi Wilson	Microbiologist/TSE Testing
	Leah Powers	Lab Assistant/TSE Testing
Molecular Diagnostics	Jeanette Bishop	Research Associate
Parasitology	Lora Ballweber, DVM/MS	Section Head
	Brandy Nagamine	Lab Technician
Pathology	Barbara Powers, DVM/PhD/DACVP	Pathologist/Director
	EJ Ehrhart, DVM/PhD/DACVP	Pathologist
	Gary Mason, DVM/PhD/DACVP	Pathologist/Section Head

DIAGNOSTIC LABORATORY PERSONNEL, cont.

	Pat Schultheiss, DVM/PhD/DACVP	Pathologist
	Terry Spraker, DVM/PhD/DACVP	Pathologist
	Tawfik Aboellail, MVSc/PhD/DACVP	Pathologist
	Colleen Duncan, DVM/MSc/PhD/DACVP/DACVPM	Pathologist
	Lee DeBuse	Lab Technician
	Lisa Wolfe	Lab Technician
	Dennis Madden	Lab Coordinator
	Erik K. Themm	Lab Assistant
Clinical Pathology	Andrea Bohn, DVM/PhD/DACVP	Clinical Pathologist
	Paul Avery, DVM/PhD/DACVP	Clinical Pathologist
	Christine Olver, DVM/PhD/DACVP	Clinical Pathologist/Section Head
Histology	Linda Vap, DVM/DACVP	Lab Coordinator
	Todd Bass	Lab Supervisor
	Grant Evans	Lab Technician
	Matthew Garber	Lab Technician
	Annie Nelson	Lab Technician
	Bruce Cummings	Research Associate
Quality Assurance	Dwayne Hamar, PhD	QA Manager
	Christina Weller	QA Asst Manager
ROCKY FORD		
Office Staff	James Kennedy, DVM/MS	Director
Laboratory	Carol Knudsen	Lab Assistant
	Loxi Proctor	Lab Assistant
	Jennifer Boden	Lab Technician
	Dayla Pearl	Lab Technician
	Jane Carman-Wharry	Microbiologist
	Laura Mendenhall	Admin Asst
GRAND JUNCTION		
Laboratory	John Andrews, DVM/PhD/DACVP	Director, ½ time
	Don Kitchen, DVM/PhD/DACVP	Director, ½ time
	Kim Hannafious	Microbiologist
	Cheryl Thomas	Microbiologist
	Antonia Histia	Admin Asst
	Fred Crippen	General Laborer

AWARDS, HONORS AND SERVICE MILESTONES, 2010

5 Years of Service

Helen Koh
Mike Russell
Fred Crippen
Kim Speaker
Kim Hannafious
Ivy Ho

10 Years of Service

Lee DeBuse

25 Years of Service

Carrie Schmer

15 Years of Service

Monica Estay
Denise Bolte

20 Years of Service

Lee DeBuse

30 Years of Service

Dennis Madden

AAVLD Distinguished Service Award – Jay Kammerzell

EXTERNAL ADVISORY COMMITTEE MEMBERS

Member/Industry Representing

Dr. Joan Bowen/Small Ruminant	5036 ECR 60	Wellington, CO 80549
Mr. Norm Brown/Equine	8167 NCR 11	Wellington, CO 80549
Dr. Keith Roehr/State Vet	CO Dept of Agric	Denver, CO 80215
Mr. Terry Fankhauser/Exe Dir/CCA	8833 Ralston Road	Arvada, CO 8000
Dr. Mike Gotchey/Equine	1878 Lincoln Avenue	Steamboat Springs, CO
Dr. Bob Davies/Wildlife/CDOW	6060 Broadway	Denver, CO 80216
Dr. Marv Hamann/Mixed Practice	183 Domingo Drive	Pueblo West, CO 81007
Mr. Ed Hansen/Beef Cattle	4554 CR 74E	Livermore, CO 80636
Dr. Dean Hendrickson/VTH Director	CSU VTH	Fort Collins, CO 80523
Dr. Ron Kollers/Small Animal	1336 W. Elizabeth	Fort Collins, CO 80521
Dr. Elisabeth Lawaczek	CO Dept of Public Health & Environment	Denver, CO 80216
Dr. Paul Lunn/Clin Sci Dept Head	VTH/Dept of Clinical Sciences	Fort Collins, CO 80523
Dr. Larry Mackey/Large Animal	PO Box 336204	Greeley, CO 80632
Dr. Leesa McCue/Mixed Animal	124 Main	Limon, CO 80828
Dr. Del Miles/Beef Cattle	5626 W. 19th Str, Suite A	Greeley, CO 80634
Dr. Mike Miller/Wildlife/CDOW	317 W. Prospect	Fort Collins, CO 80526
Dr. Roger Perkins/USDA/AVIC/APHIS	755 Parfet, Suite 136	Lakewood, CO 80215
Mr. Kenny Rogers/CCA	5151 CR 34	Yuma, CO 80759
Dr. Steve Wheeler/Small Animal	3550 S. Jason Street	Englewood, CO 80110
Dr. Lou Swanson	CSU Extension	Fort Collins, CO 80523

Our External Advisory Committee members volunteer their time to meet with us annually and assess our progress, as well as provide input to our future directions. We are grateful for their time and advice, and hope they feel that they are an integral part of the laboratory.

The Diagnostic Laboratory in conjunction with the Department of Microbiology, Immunology, and Pathology provides hands-on educational experiences to senior Professional Veterinary Medical students in the areas of Pathology, Microbiology, and Parasitology. We also are educating the next generation of veterinary pathologists and microbiologists. Below is a listing of our residents.

Pathology Residents

Paula Schaffer, BS/DVM
Clare Hoover, DVM
Alana Garner, DVM
Charles Halsey, DVM
Brett Webb, DVM
Karen Fox, DVM
Shannon McLeland, DVM
Gopi Palanisamy, DVM
Deanna Dailey, DVM
Brendan Podell, DVM
Amy Miller, DVM (Clinical Pathology)
Michael Wiseman DVM (Clinical Pathology)
Laura Brandt, DVM (Clinical Pathology)
Mauren Emanuelli, DVM (Clinical Pathology)
Julie Rysleff, DVM (Clinical Pathology)
Matt Feirer, DVM (Clinical Pathology)

Microbiology

Valerie Johnson, DVM
Laurie Baeten, DVM

Comparative Lab Animal Medicine

Cristina Marie Weiner, DVM
Elizabeth Magden, DVM
Matt Rosenbaum, DVM
Wynona Burgess, DVM

DIAGNOSTIC LABORATORY FACULTY TEACHING CONTRIBUTIONS, 2010

ANEQ792E	Nutrition Seminar/K. Pabilonia, H. VanCampen
ERH510	Cancer Biology/E. Ehrhart
IU193	Introduction to Parasites/L. Ballweber
MBCC192	Infectious diseases of Animals/H. Van Campen
MIP192	Microbiology First-Year Seminar/D. Hyatt
MIP334	Food Microbiology/D. Hyatt, T. Spraker
MIP335	Food Microbiology Laboratory/D. Hyatt
MIP400F	Capstone in Microbiology/H. Van Campen
MIP420	Medical and Molecular Virology/H. Van Campen
MIP540	Biosafety in Research Laboratories/K. Pabilonia
MIP636	Mechanisms of Viral Infection and Disease/H. Van Campen, T. Aboellail
MIP700	Topics in Virology/H. Van Campen
MIP420	Medical and Molecular Virology/H. Van Campen
MIP555	Principles and Mechanisms of Disease/P. Schultheiss, G. Mason, T. Aboellail, E. Ehrhart, C. Duncan
MIP778	Pathobiology of Laboratory Animals/E. Ehrhart, G. Mason
MIP786A	Practicum--Comparative Gross and Histologic Pathology/E. Ehrhart, D. Hyatt, G. Mason, P. Schultheiss, T. Spraker, T. Aboellail, H Van Campen, C. Duncan
MIP786B	Practicum--Surgical Pathology/E. Ehrhart, G. Mason, P. Schultheiss, T. Spraker, T Aboellail, C. Duncan
MIP786C	Practicum for Clinical Pathology Residents/C. Olver, P. Avery, A. Bohn
MIP792AC	Bioanalytical and Microscopy Seminar/E. Ehrhart, G. Mason, P. Schultheiss, T. Spraker, T. Aboellail, C. Duncan
MIP792D	Seminar Anatomic Pathology/E. Ehrhart, G. Mason, P. Schultheiss, T. Spraker, T. Aboellail, C. Duncan
MIP796V	General Pathology Group Study/T. Aboellail
MIP796V	Surgical Pathology/B. Powers
MIP615	Ophthalmological Histopathology/E. Ehrhart
MIP796V	Dermatopathy/P. Schultheiss
VM601	Perspectives in Veterinary Medicine/T. Spraker, K. Pabilonia
VM638	Veterinary Parasitology/L. Ballweber
VM639	Veterinary Virology and Parasitology/H. Van Campen, L. Ballweber
VM640	Biology of Disease I/G. Mason, E. Ehrhart
VM648	Food Animal Production and Food Safety/K. Pabilonia
VM650	Veterinary Microbiological Laboratory Techniques/H. Van Campen
VM707	Emerging Infectious Diseases/K. Pabilonia , C. Duncan
VM721	Exotics/K. Pabilonia
VM722	Veterinary Pharmacology/L. Ballweber
VM724	Bioanalytic Pathology/P. Schultheiss
VM741	Biology of Disease II/P. Schultheiss, G. Mason, T. Spraker, E. Ehrhart, T. Aboellail, C. Duncan
VM742	Biology of Disease III/G. Mason, P. Schultheiss, T. Spraker, E. Ehrhart, H. VanCampen, T. Aboellail, C. Duncan
VM751	Veterinary Clinical Toxicology/D. Hamar
VM786A	Junior Practicum--Food-Animal Diagnostics and Surgery/G. Mason

TEACHING CONTRIBUTIONS, cont.

VM786A	Junior Practicum—Food Animal Obstetrics/L. Ballweber
VM786A	Junior Practicum—Small Animal Procedures/L. Ballweber
VM786A	Junior Practicum—Emerging and Exotic Diseases of Animals/K. Pabilonia
VM786B	Senior Practicum--Clinical Service Necropsy Block/E. Ehrhart, D. Hyatt, G. Mason, P. Schultheiss, T. Spraker, H. Van Campen, T. Aboellail
VM796V	Dermatopathology/P. Schultheiss
VS626	Infertility and Genital Diseases/H. Van Campen
VS642	Ophthalmology/E. Ehrhart
VS780	Cancer Biology Clinical Practicum/E. Ehrhart

**SCIENTIFIC PRESENTATIONS, PROCEEDINGS, AND ABSTRACTS
BY FACULTY AND STAFF MEMBERS, 2010**

Aboellail T, Webb B, McLeland S, Powers, B, Porter BF. Camelid neoplasia and congenital proliferative lesions: a 10-year retrospective study, 2001-2010. Proceedings of the 53th Annual Meeting of AAVLD/USAHA. November, 2010.

Ballweber LR. Comparison of 4 methods for the detection of canine *Giardia*. 53rd Annual AAVLD/USAHA Meeting. Minneapolis, November, 2010.

Carlson JC, Franklin AB, Linz Gary Mason, DVM/PhD/DACVP, **Hyatt DR**, Pettit S. The role of European starlings in the spread of Salmonella within concentrated animal feeding operations. The Wildlife Society 17th Annual Conference, Snowbird, UT. 2010-A-137-TWS. October 2010.

Carlson JC, Franklin AB, Linz GM, **Hyatt DR**, Pettit S. The role of European starlings in the spread of Salmonella within concentrated animal feeding operations. The Wildlife Society 17th Annual Conference, Snowbird Utah. October 2010.

Chavez DJ, LeVan I, Miller M, **Ballweber LR.** Prevalence of *Baylisascaris procyonis* in raccoons from the Northern Colorado Front Range. Celebrate Undergraduate Research and Creativity, Colorado State University, Fort Collins, April, 2010.

Chavez DJ, LeVan I, Miller M, **Ballweber LR.** Prevalence of *Baylisascaris procyonis* in raccoons (*Procyon lotor*) from eastern Colorado. American Association of Veterinary Parasitologists, 55th Annual Meeting, Atlanta, July, 2010. (Presentor).

Chavez DJ, LeVan I, Miller M, **Ballweber LR.** *Baylisascaris procyonis* prevalence in raccoons (*Procyon lotor*) in eastern Colorado. XIIth International Congress of Parasitology. Melbourne, Australia, August, 2010. (Presentor).

Dailey DD, Donoghue ELO, Anifinsen KP, **Ehrhart EJ**, Charles JB, Duval DL. Expression of Hes-1 in Canine Osteosarcoma. American College of Veterinary Pathologists (ACVP) Annual Meeting. Baltimore, MD. October November, 2010.

Elmore SA, O'Hara TM, **Ballweber LR.** Epidemiological aspects of *Neospora caninum* in Alaskan canids. CVMBS Research Symposium, Fort Collins, February, 2010.

Enns M, Loneragan G, Weaber RL and **Van Campen, H.** Factors including onset of disease and subsequent effects on feedlot performance. 2010.

Hart C, **Ehrhart EJ**, Duval D, Turner AS. Evaluation of dermagraft to accelerate the healing of rotator cuff injuries in a sheep model. Poster 56th Annual Meeting of the Orthopaedic Research Society. New Orleans, LA. March 2010.

Kraft S, Serkova N, **Ehrhart EJ.** Metabolic responses to chemotherapy in multicentric canine "lymphoma by biopsy-based nuclear magnetic resonance (NMR) spectroscopy. Proceedings/Notes. World Molecular Imaging Congress. Kyoto, Japan. September 2010.

LaRue SM Trncic N, **Ehrhart E.** Kraft SL. Stereotactic radiation therapy alters tumor microenvironment. Platform Presentation Gordon Research Conference. January 2010.

Linton A, **Ballweber L**, Salman M, O'Hara T, Beckmen K. 2010. Intestinal macroparasites and mercury (Hg): the chemical ecology within the alimentary tract of a piscivore host. CVMBS Research Symposium, Fort Collins, February, 2010.

Linton A, Beckman KB, O'Hara TM, Salman M, **Ballweber LR.** Toxicant-parasite interactions: The role of

macroparasites in mercury dynamics within the gastrointestinal tract of mammalian hosts. American Association of Veterinary Parasitologists, 55th Annual Meeting, Atlanta, July, 2010.

Linton A, Beckman KB, O'Hara TM, Salman M, **Ballweber LR**. Toxicant-parasite interactions in Alaskan grey wolves: The role of intestinal macroparasites in the uptake & biotransformation of mercury (Hg). XIIth International Congress of Parasitology. Melbourne, Australia, August, 2010.

Mejia, JS, Toot-Zimmer, AL, **Schultheiss P**, Beaty BJ, Titus R. Blue Point: A Versatile Tissue Platform to Study the Inflammatory and Immune-Response to the Bite of *Lutzomyia longipalpis* Sand Flies. Vector of Visceral Leishmaniasis in the New World. Immunotherapeutics and Vaccine Summit, Cambridge, MA, August 2010.

Myers E, Swafford S, Baroch JA, **Ballweber LR**. Comparison of two serological tests for detection of antibodies to *Toxoplasma gondii* in feral swine. Merial Veterinary Scholars Program Annual Meeting, Athens, August, 2010.

Pabilonia, KL. Influenza in Animals. Zoonoses Conference. Denver, CO. April 2010.

Pabilonia, KL. Backyard Chicken Challenges. Zoonoses Conference. Denver, CO. April 2010.

Pabilonia, KL, Setiyaningshi, S, Muljono, AT, Widyastuti, MD, Arief, RA, Nugroho, E, Wibawan, IW and Bowen, RA. Avian Influenza Virus in Domestic Ducks in West Java, Indonesia. Asia-Pacific Conference on Wildlife Borne Diseases. Beijing, China. July 2010.

Pabilonia, KL, Marolf, A, Weller, CB, Thomas, M, Beam, A, Miller, E, Yoon, KJ and **Powers, BE**. Influenza A Virus (H1N1) in Two Cats with Severe Respiratory Disease. American Association of Veterinary Laboratory Diagnosticians Annual Conference. Minneapolis, MN. November 2010.

Simoes, EA, Kartasasmita, CB, Balia, RL, Agustian, D, Murad, C, Lara US, G, Mutyara, K, Tessa, P, Izza, N, Parwati, I, Moedjiarti, S, Setiyaningsih, A, Bowen, RA, **Pabilonia, KL**, Gross, DK and Uyeki, TM. The Human-Animal H5N1 Interface in Bandung District, West Java, Indonesia. Options for the Control of Influenza VII. Hong Kong SAR, China. September 2010.

Spraker, T. Baseline Histological Health Assessment of Subsistence Harvested Arctic Marine Mammals from the North Slope Borough Village of Wainwright, Alaska. ACVP Conference, Baltimore, MD. October-November 2010.

Spraker, T. Capture Myopathy and Associated Condition with Capture and Transportation of Wildlife. Immobilization and Euthanasia Certification Courses. USDA/APHIS/WS, Fort Collins, CO. May 2010.

Stromberg BE, Gasbarre LC, **Ballweber LR**, Dargatz DA, Rodriguez JM, Zarlenga DS. Cattle internal parasitism and deworming effectiveness from the 2008 USDA NAHMS beef cow/dalf study. American Association of Veterinary Parasitologists, 55th Annual Meeting, Atlanta, July, 2010.

Stromberg B, Gasbarre L, **Ballweber L**, Dargatz D, Rodriguez J. Parasitic gastrointestinal nematode control practices in US cow-calf operations – insights from the USDA National Animal Health Monitoring Systems. World Buiatrics Congress 2010. Santiago, Chile, November, 2010.

Webb BT, Honken D, **Norrrdin R**, **Aboellail T**, **Spraker T**, Hansen TR, **Van Campen, H**. Infertility, abortion and fetal bone lesions in a captive bison herd associated with bovine viral diarrhea virus. AAVLD Annual Meeting. Minneapolis, MN. November 2010.

Yoshikawa H, **Ehrhart EJ**, Charles B, LaRue Shannon McLeland, DVM. Molecular biological analysis of feline oral squamous cell carcinoma. Proceedings/Notes presented: Vet Cancer Society. 30th Annual Conference. San Diego, CA. October/November 2010.

SCIENTIFIC PUBLICATIONS BY FACULTY MEMBERS, 2010

Balachandran A, Harrington NP, Algire J, Soutyrine A, **Spraker TR**, Jeffrey M, Gonzalez L, O'Rourke KI. Experimental oral transmission of chronic wasting disease to red deer (***Cervus elaphus elaphus***): early detection and late stage distribution of protease-resistant prion protein. *Canadian Journal of Research*. 51:169-178. 2010.

Ballweber LR, Xiao L, Bowman DD, Kahn G, Cama VA. Giardiasis in dogs and cats: Update on epidemiology and public health significance. *Trends Parasitol*. 26:180-189. 2010.

Carlson JC, Franklin AB, Linz GM, **Hyatt DR**, Pettit S. The role of European starlings in the spread of Salmonella within concentrated animal feeding operations. *Journal of Applied Ecology*. Accepted for publication 12/9/2010.

Clements, KM, Shipley CF, Coleman DA, **Ehrhart EF**, Haschek WM, Clark SG. Azoospermia in an 8-month-old boar due to bilateral obstruction at the testis/epididymis interface. *Can Vet J* 51:1130-1134. 2010.

Connally HE, Thrall MA, **Hamar DW**. Safety and efficacy of high dose fomepizole compared to ethanol as therapy for ethylene glycol intoxication in cats. *Journal of Veterinary Emergency and Critical Care*. 20(2):191-206. 2010.

Da Silva EG, Gionfriddo JR, Powell CC, Campbell TW, **Ehrhart EJ**. Iridociliary melanoma with secondary lens luxation: distinctive findings in a long-haired cowfish (*Lactoria cornuta*). *Vet Ophthalmol*. Suppl: 123-7. September 2010.

Deem SL, Merkel J, **Ballweber L**, Vargas FH, Cruz MB, Parker PG. Exposure to *Toxoplasma gondii* in Galapagos penguins (*Spheniscus mendiculus*) and flightless cormorants (*Phalacrocorax harrisi*) in the Galapagos Islands, Ecuador. *J Wildl Dis*. 46:1005-1011. 2010.

Dennis MM, McSporran KD, Bacon NJ, Schulman FY, Foster RA, **Powers BE**. Prognostic Factors for Cutaneous and Subcutaneous Soft Tissue Sarcomas in Dogs. *Vet. Pathol.*, Epub Dec. 2010

Desch CE, Andrews JJ, Baeten LA, Holder Z, Powers JG, Weber D, **Ballweber LR**. New records of hair follicle mites (Demodecidae) from North American Cervidae. *J Wildl Dis*. 46:585-590. 2010.

Halsey CH, **Powers BE**, Kamstock DA. Feline Intestinal Sclerosing Mast Cell Tumor: 50 Cases (1997-2008) *Vet. Comp. Oncol* 8: 72-79, 2010.

Hansen TR, Smirnova NP, **Van Campen H**, Shoemaker ML, Ptitsyn AA, H. Bielefeldt-Ohmann. Maternal and fetal response to fetal persistent infection with bovine viral diarrhoea virus. *American Journal of Reproductive Immunology*, 64(4):295-306. 2010.

Kamstock DA, **Ehrhart EJ**, Getzy DM, Bacon NJ, Rassnick KM, Moroff SD, Liu SM, Straw RC, McKnight CA, Amorim RL, Bienzle D, Cassali GD, Cullen JM, Dennis MM, Esplin DG, Foster RA, Goldschmidt MH, Gruber AD, Hellm n E, Howerth EW, Labelle P, Lenz SD, Lipscomb TP, Locke E, McGill LD, Miller MA, Mouser PJ, O'Toole D, Pool RR, **Powers BE**, Ramos-Vara JA, Roccabianca P, Ross AD, Sailasuta A, Sarli G, Scase TJ, Schulman FY, Shoieb AM, Singh K, Sledge D, Smedley RC, Smith KC, Spangler WL, Steficek B, Stromberg PC, Valli VE, Yager J, Kiupel M. Recommended Guidelines for Submission, Trimming, Margin Evaluation, and Reporting of Tumor Biopsy Specimens in Veterinary Surgical Pathology. *Vet Pathol.*, Epub Dec. 2010

Klose TC, MacPhail, CM, **Schultheiss PC**, Rosychuk RA, **Hawley JR**, **Lappin MR**. Prevalence of select infectious agents in inflammatory aural and nasopharyngeal polyps from client-owned cats. *Journal of Feline Medicine and Surgery*. 12:769-774, 2010.

Mathiason CK, Hayes-Klug J, Hays SA, Powers J, Osborn DA, Dahmes SJ, Miller KV, Warren RJ, **Mason GL**, Telling GC, Young AJ, Hoover EA. B cells and platelets harbor prion infectivity in the blood of deer infected with chronic wasting disease. *J Virol*. 2010 May;84(10):5097-107. Epub 2010 March 10.

Mejia JS, Zimmer AL, **Schultheiss PC**, Beaty BJ, Titus RG. BluePort: a versatile tissue platform to study the inflammatory and immune responses to the bite of *Lutzomyia longipalpis* sand flies, vector of *Visceral Leishmaniasis* in the New World. *PLoSOne* 5:1-9, 2010.

- Morley PS, Dargatz DA, **Hyatt DR**, Dewell G, Patterson G, Burgess B, Wittum T. Effects of restricted antimicrobial exposure on antimicrobial resistance in fecal *Escherichia coli* from feedlot cattle. Foodborne Pathogens and Disease. (FPD-2010-0632) Foodborne Pathog Dis., Epub October. 2010.
- Ondrak JD, Keen JE, Rupp GP, **Kennedy JA**, McVey DS, Baker, WD. Repeated testing by use of culture and PCR assay to detect *Tritrichomonas foetus* carrier bulls in an infected Nebraska herd. J Am Vet Med Assoc. 2010.
- Prioetti PC, Passamonti F, **Hyatt DR**. Characterization of genes encoding virulence determinants and toxins in Staphylococcus aureus from bovine milk in Central Italy. The Journal of Veterinary Medical Science. (JVMS-10-0158.R2) J Vet Med Sci. 2010 Nov;72(11):1443-8. Epub July 2010.
- Rhyan JC, **Spraker TR**. Emergence of diseases from wildlife reservoirs. Veterinary Pathology. 47:34-40. 2010.
- Root JJ, Bentler KT, Nemeth NM, Gidlewski T, **Spraker TR**, Franklin AB: Experimental infection of raccoons (*Procyon lotor*) with West Nile virus. Am.J.Trop.Med Hyg. 83:803-807. 2010.
- Rumbeiha WK, Agnew D, Maxie G, Hoff B, Page C, Curran P, **Powers B**. Analysis of a Survey Database of Pet Food-induced Poisoning in North America. J Med Toxicol. 6 : 172-184, 2010
- Seelig DM, **Mason GL**, Telling GC, Hoover EA. Pathogenesis of chronic wasting disease in cervidized transgenic mice. Am J Pathol. 2010 June;176(6):2785-97.
- Slota, KE**, Hill, AE, Keefe, TJ, Bowen, RA, Miller, RS and **Pabilonia, KL**. Human-bird interactions in the United States upland gamebird industry and the potential for zoonotic disease transmission. Vector-Borne and Zoonotic Diseases. Epub December. 2010.
- Sottnik JL, Duval DL, **Ehrhart EJ**, Thamm DH. An orthotopic, post-surgical model of luciferase transfected murine osteosarcoma with spontaneous metastasis. Mar 27(3):161-60. Epub March 2010.
- Spraker TR**, T Gidlewski, JG Powers, MA Wild, JJ Greenlee, AN Hamir, KI O'Rourke. Detection of PrP CWD in the optic pathways of the brain and retina of Rocky Mountain elk (*Cervus elaphus nelsoni*) with chronic wasting disease. Veterinary Pathology. 47:536-546. 2010.
- Spraker Terry R**, Landers M. Causes of mortality in Northern Fur Seals, St. Paul Island, Alaska. Journal of Wildlife Diseases. 43:450-473. 2010.
- Thamm DH, Kurzman ID, Clark MA, **Ehrhart EJ**, Kraft SL, Gustafson DL, Vail DM. Pre-clinical investigations of PEGylated tumor necrosis factor alpha in dogs with spontaneous tumors: phase I evaluation. Clin Cancer Res 16(5):1498-508. Epub Feb 2010. March 2010.
- Valli VE, Myint MS, Barthel A, Bienzle D, Caswell J, Colbatzky F, Durham A, **Ehrhart EJ**, Johnson Y, Jones C, Kiupel M, Labelle P, Lester S, Miller M, Moore P, Moroff, S, Roccabiana P, Ramos-Vara J, Ross A, Scase T, Tvedten H, Vernau W. Classification of canine malignant lymphomas according to the World Health Organization Criteria. Vet Pathol. Epub. September. 2010.
- Van Campen H**. Epidemiology and control of BVD in the US. Vet Microbiol 142:94-98. 2010.
- Van Campen H**, Rhyan J. The role of wildlife in diseases of cattle. In: Veterinary Clinics of North America. Emerging and re-emerging diseases of cattle. Vol. 26(1), pp. 147-161. 2010.
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White SN, O'Rourke KI, Gidlewski TL, VerCauteren KC, Mousel MR and **Spraker TR**. Increased risk of chronic wasting disease in Rocky Mountain elk associated with decreased magnesium and increased manganese in brain tissues. Canadian Journal of Veterinary Research. 74:50-53. 2010.

Wimsatt J, Withrow SJ, Danner D, **Powers B**, Hagler T, Pritzker KP. Multicystic Bone Disease (Gorham-Stout Syndrome) in a Spider Monkey (*Ateles geoffroyi*). J Med Primatol.2010

Wolfe LL, Diamond B, **Spraker TR**, Sirochman MA, Walsh DP, Machin CM, Bade DJ, Miller MW. A bighorn sheep die-off in southern Colorado involving a Pasteurellaceae strain that may have originated from syntopic Cattle. Journal of Wildlife Diseases. 46:1262-1268. 2010.

PRESENTATIONS/OUTREACH TO THE PUBLIC, 2010

Ballweber LR, Elmore S. Improving the quality and value of fecal exams. CVMBS Technician Program, Jan 10, 2010, Fort Collins. (presented by Elmore)

Ballweber L, Gasbarre L, Stromberg B, Dargatz D, Rodriguez J. Parasitic gastrointestinal nematode control practices in US cow-calf operations – insights from the USDA National Animal Health Monitoring Systems; Producer survey. The North American Veterinary Conference. Jan, 2010, Orlando.

Ballweber L, Gasbarre L, Stromberg B, Dargatz D, Rodriguez J. Parasitic gastrointestinal nematode control practices in US cow-calf operations – insights from the USDA National Animal Health Monitoring Systems; Parasite prevalence and FECRT. The North American Veterinary Conference. Jan, 2010, Orlando

Ballweber LR. Toxoplasmosis: Is that still a problem? Western Veterinary Conference. Feb 14-18, 2010, Las Vegas.

Ballweber LR. What does it take? Western Veterinary Conference. Feb 14-18, 2010, Las Vegas.

Ballweber LR. Understanding toxoplasmosis. American Animal Hospital Association Conference. March 18-21, 2010, Long Beach.

Ballweber LR. What goes into making a good fecal float. Alpaca Breeder's of the Rockies, Fecal Parasite Examination Lab. June, 2010, Fort Collins.

Ballweber LR. Parasites we should be aware of. Pacific Veterinary Conference. July 15-18, 2010, San Francisco.

Ballweber LR. Fleas and the environment: Are there really no fleas in the west? Pacific Veterinary Conference. July 15-18, 2010, San Francisco.

Ballweber LR. Ticks and fleas: Where are they, really? 147th AVMA Annual Convention, July 31-Aug 3, 2010, Atlanta.

Ballweber LR. Selected topics in parasitology: Parasites of non-canine/feline companion animals. 147th AVMA Annual Convention, July 31 – Aug 3, 2010, Atlanta.

Ballweber LR. Pfizer Animal Health, Cattle Parasite Control Therapeutic Area Review 2010. "NAHMS survey relative to cattle management." December, 2010.

Ballweber LR. Pfizer Animal Health, Cattle Parasite Control Therapeutic Area Review 2010. “Parasite diagnostics as a tool to improve cattle productivity. What exists and what should be developed.” December, 2010.

Duncan, CD. Fish Diseases. National Park Service. 2010.

Hamar DW. Dealing with Suspected Toxicity. Invited speaker for the Colorado Association of Animal Control Officers (CAACO). April 28. Denver, CO.

Kennedy JA. *T. foetus*, "Pooled testing, two trials and reality" Western Livestock Health Association. Reno, NV. March 2010.

Kennedy JA. Handling and Collection of Diagnostic Specimens. Nebraska Animal Veterinary Technicians Meeting. 2010.

Kennedy JA. Update from the Rocky Ford Laboratory. Colorado Cattleman’s Association. Colorado Springs, CO.

Kennedy JA. Emerging Animal Diseases. Academy of Veterinary Consultants. 2010.

Kitchen D. Activities and Services offered by Western Slope Veterinary Diagnostic Laboratory. Grand Valley Veterinary Retreat, Grand Junction, CO 2010.

Pabilonia K. “Raising Health Poultry Flocks” at the CSU Small Acreage Workshop. September 2010.

Pabilonia K. “Diseases of poultry and poultry flock management” for Weld County 4-H. February 2010 and Larimer County 4-H, March 2010.

Pabilonia K. “Linking Animal and Human Health in the Developing World”. VTH Open House. April 2010.

Pabilonia K. “Pandemic H1N1 Influenza Virus”, “Global Impacts of Influenza Virus”, “Backyard Bird Flock Management”, “Common Diseases of Backyard Poultry”, and “Treating Backyard Chickens”. Colorado Veterinary Medical Association Convention. September 2010. Loveland, CO.

Spraker T. Diseases of Wildlife in National Parks. Laramie, WY. March 2010.

Spraker T. Forensic Pathology for Animal Control Officers—Colorado Association of Animal Control Officers. April 2010. Denver, CO.

ON-GOING FUNDED CONTRACTS AND GRANTS, 2010

Ballweber LR. (PI). Abaxis Service Contract. Abaxis. 4/27/09-4/26/11. \$22,126.

Ballweber LR. (PI). Intervet/Schering-Plough Clinical Trial. Intervet, Inc. 7/1/10-6/30/12. \$113,744.

Duncan CD and Spraker T. (Co-Invest). Endocrine Disruption in Subsistence Harvested Arctic Marine Mammals from the North Slope Borough Village of Barrow. Morris Animal Foundation. 06/01/10-08/31/10. \$2000.

Ehrhart E. (Co-Invest). Development of a Model of Equine Herpesvirus-1. Biotechnology Research and Development Corporation. 10/1/09-09/30/12. \$604,016.

Ehrhart E. (Co-Invest). Stereotactic Radiation Therapy for Feline Oral Squamous Cell Carcinomas Using Molecular Pathology. SM LaRue (PI). Morris Animal Health Foundation. 10/1/09-9/30/12. \$131,819.

Ehrhart E. (Co-Invest). Erectile Dysfunction Following Radiation Therapy—A Canine Model. SM LaRue (PI). Varian Medical Systems, Inc. 1/15/09-7/15/10. \$383,146.

Ehrhart E. (Co-Invest). Molecular Pathology of Feline Oral Squamous Cell Carcinoma. SM LaRue (PI). Robert H. Winn Foundation. 3/1/09-2/28/10. \$5,808.

T. Eckstein, F. Garry, A.M. Hess, **D.R. Hyatt.** Evaluation of a Newly Developed Approach to Detect Cattle with Johne's Disease and to Predict Disease Development. USDA/CSREES. 9/01/09-8/30/11. \$200,000.

A. Franklin, J. Carlson, H. Sullivan, J. Homan, G. Linz, M. Bodenchuck, R. Gilliland, **L. Ballweber, D.R. Hyatt.** Role of European Starlings (*Sturnus vulgaris*) in the Transmission of *Salmonella enterica* and Coccidia to Cattle in the Texas Panhandle. USDA/APHIS/WS/NWRC. \$215,900. Collaborator. 12/2008-12/2011.

Pabilonia, K. (Invest). Zoonotic Avian Influenza: The Human-Animal Interface in the US and Asia. Centers for Disease Control and Prevention. 9/30/06-9/29/11. \$2,618,847.

Pabilonia K. (PI). Avian Influenza Detection for Wild Bird Samples. USDA/APHIS. 9/10-9/11. \$25,000.

Pabilonia K. (PI). Notifiable Avian Influenza National Poultry Improvement Plan Surveillance Program. USDA/APHIS. 4/1/09-3/31/10. \$60,000.

Pabilonia K. (PI). Notifiable Avian Influenza in the Live Bird Marketing System. USDA/APHIS. 4/1/09-3/31/10. \$140,000.

Pabilonia K. (PI). Notifiable Avian Influenza National Poultry Improvement Plan Surveillance Program for Upland Gamebirds. USDA/APHIS. 4/1/09-3/31/10. \$60,000.

Pabilonia K. (PI). Notifiable Avian Influenza Prevention and Control Program. Improvement Plan Surveillance Program for Upland Gambirds. USDA/APHIS. 4/10-03/11. \$295,000.

Pabilonia K. (PI). Notifiable Avian Influenza National Poultry Improvement Plan Surveillance Program. 4/09-3/10. \$100,000.

Pabilonia K. (PI). Wild Bird Tissue Archiving and Genotyping. Co-Invest **L. Ballweber.** USDA/APHIS. 5/1/09-4/30/11. \$103,469.

Pabilonia K. (PI). National Poultry Improvement Plan Low Pathogenicity Avian Influenza Monitored Program for Commercial Table Egg Layers, Broilers and Turkeys. APHIS/USDA. 9/30/08-9/30/10. \$30,000.

Pabilonia K. (PI). National Avian Influenza Tissue Archive and Genotyping. Co-Invest **L. Ballweber, T. Spraker.** USDA/APHIS. 5/10-4/11. \$129,562.

Powers B. (PI). National Animal Health Laboratory Network—Core Animal Diagnostic Laboratory. Co-Invest **K. Pabilonia, D. Hyatt and D. Hamar.** USDA. 09/01/09-08/30/11. \$298,000.

Powers B. (PI). Classical Swine Fever Surveillance. USDA. 01/01/10-03/31/11. \$55,000.

Powers B. (PI). Classical Swine Fever. Foot and Mouth Disease and Pseudorabies Surveillance. USDA/APHIS. 9/01/09-3/31/11. \$66,847.

Spraker T. (PI). Dissemination of Abnormal Prion Protein in White-Tailed Deer and Elk with Naturally Infected with Chronic Wasting Disease. ARS/USDA. 06/19/08-06/23/13. \$41,970.

Spraker T. (Co-PI). Paranasal Sinus Tumors of Bighorn Sheep. Boone and Crockett Club. 07/01/10-06/30/11.

\$15,000.

Spraker T. (PI). Sinus Tumors of Rocky Mountain Bighorn Sheep. CO Division of Wildlife. 06/02-10-06/30/13. \$283,500.

Spraker T. (PI). Chronic Wasting Disease. USDA/APHIS. 9/24/08-9/23/10. \$31,680.

Spraker T. (PI). Chronic Wasting Disease Diagnostic Services. National Park Service. 9/25/07-3/31/11. \$34,000.

Spraker T. (PI) and Duncan CD (Co-Invest). Technical Assistance to the National Park Service Wildlife Health Team. National Park Service. 06/15/07-12/31/12. \$441,700.

Spraker T. (PI) and Duncan, CD (Co-Invest). Histopathology Services to Identify Causes of Morbidity and Mortality in Marine Mammals. National Oceanic Atmospheric Administration. 09/01/10-12/31/11. \$30,000.

Spraker T. (PI). Technical Assistance for Veterinary Pathology and Diagnostic Service for NPS Wildlife Species. National Park Service. 02/18/11-07/31/11. \$85,000.

Van Campen H. (Invest). Maternal and Fetal Response to Fetal Persistent Infection with BVDV. TR Hansen (PI). USDA/CSREES. 10/1/08-9/30/11. \$100,000.

STATE OR NATIONAL COMMITTEES, 2010

Aboellail T, Ballweber L, Duncan C, Hamar D, Hyatt D, Andrews J, Mason G, Pabilonia K, Powers BE, Schultheiss PC, Kitchen D, Spraker TR, Kennedy J, Van Campen H. Members, American Association of Veterinary Laboratory Diagnosticians

Aboellail T, Ballweber L, Duncan C, Ehrhart EJ, Pabilonia K, Andrew J, Kamstock D, Kennedy J, Mason G, Powers BE, Kitchen D, Schultheiss PC, Spraker T, Van Campen H. Members, Colorado Veterinary Medical Association

Aboellail T, Duncan C, Ehrhart EJ, Mason G, Kamstock D, Kitchen D, Andrews J, Powers BE, Schultheiss PC, Spraker TR. Members, American Collage of Veterinary Pathologists

Ballweber L, Powers BE, Kennedy J, Schultheiss PC, Van Campen H. Members, American Veterinary Medical Association

Ballweber L. President, American Association of Veterinary Parasitologists

Ballweber L. Past-President, American Association of Veterinary Parasitologists

Ballweber L. Member, American Society of Parasitologists.

Ballweber L. Member, American Association of Wildlife Veterinarians

Ballweber L. Member, World Association for the Advancement of Veterinary Parasitology

Ballweber L. National Board of Veterinary Medical Examiners

Ballweber L. Member, Parasitology Committee, American Association of Veterinary Laboratory Diagnosticians

Ballweber L. Member, European Veterinary Parasitology College

Duncan CD. Member, Publications Committee American Association of Veterinary Laboratory Diagnosticians

Ehrhart E. Member, American College of Veterinary Pathologists Training Committee

Ehrhart E. Member, American College of Veterinary Pathologists Oncology Initiative

Hamar D. Member, Publication, Membership, Veterinary Analytical Toxicology and Quality Systems Subcommittees, American Association of Veterinary Laboratory Diagnosticians

Hyatt D, Van Campen H. Members, American Society of Microbiology

Hyatt D. Member, International Association for Food Protection

Hyatt D. Member, Bacteriology Committee and Anaerobic Bacteriology Subcommittee. American Association of Veterinary Laboratory Diagnosticians

Hyatt D. Co-Chair and Member, Antimicrobial Susceptibility Subcommittee. American Association of Veterinary Laboratory Diagnosticians

Hyatt D. Member, Colorado Laboratory Forum

Kennedy J. Member, American Association of Bovine Practitioners

Kennedy J. Member, Academy of Veterinary Consultants

Kennedy J, Powers B, Van Campen H. Members, Colorado Cattlemen's Association.

Pabilonia K. Member, United States Animal Health Association, Transmissible Diseases of Poultry Committee

Pabilonia K. Member, United States Animal Health Association, Committee on Animal Emergency Management

Pabilonia K. Chair, Colorado Avian Influenza Task Force

Pabilonia K. Member, Colorado Interagency Influenza Coordinating Committee

Pabilonia K. Program Committee, American Association of Veterinary Laboratory Diagnosticians

Pabilonia K. Member, Methods Technical Working Group, National Animal Health Laboratory Network

Pabilonia K. Member, USDA Live Bird Marketing System Working Group

Pabilonia K. Member, Colorado Egg Producers

Pabilonia K. Chair, Publications Committee, American Association of Veterinary Laboratory Diagnosticians

Pabilonia K. Member, Zoo Animal Health Network

Powers BE. Member, Foundation Committee American Association of Veterinary Laboratory Diagnosticians

Powers BE. Chair, Committee on Advocacy and Outreach, Colorado Veterinary Medical Association

Powers BE. Member, Government Coordinating Council

Powers BE. Member, Colorado Livestock Association

Powers BE. Co-Chair, AAVLD/USAHA Joint Special Committee in the National Animal Health Laboratory Network

Powers BE. Member, Board of Directors/Colorado Veterinary Medical Foundation

Powers BE. Co-Chair, Government Relations Committee, American Association of Veterinary Laboratory Diagnosticians

Powers BE. Member, Awards Committee, American Association of Veterinary Laboratory Diagnosticians

Spraker TR, Ballweber L. Member, Wildlife Disease Association

Van Campen H.. Member, American Society for Virology

Van Campen H., Ballweber L. and Pabilonia K. Member, American College of Veterinary Microbiologists

Van Campen H. Member, Colorado Chapter of the Wildlife Society

Van Campen H. Member, Rocky Mountain Branch of the American Society for Microbiology

Van Campen H. Member, Committee on Education, Colorado Veterinary Medical Association

Van Campen, H. Editorial Board. American Association of Veterinary Laboratory Diagnosticians

ON-GOING DIAGNOSTIC LABORATORY INVESTIGATIONS

Below is a list of disease surveillance and investigation projects that the Diagnostic Laboratory personnel are conducting. Many projects serve teaching and research functions, as well as outreach and service. Those with student involvement are indicated by PVM, MS, PhD. It is worth noting that many projects involve research that would be either very expensive or impossible to do under laboratory conditions. The collaboration with producers or other government agencies usually involves a large “in-kind” contribution of animal procurement, care, and facilities costs. The list excludes simple investigations directed at making a field diagnosis.

Livestock and Poultry

- IBR abortions in cattle and relation to MLV vaccines
- Race horse catastrophic bone failure
- Genetics of beef cattle health (MS)
- Respiratory disease in neonatal calves
- Multiple aspects of BVD diagnosis, pathogenesis, epidemiology and prevention (PhD)
- BVD in farmed elk
- Trichomonas beef-herd investigations
- Anthelmintic resistance in cattle
- Respiratory disease in llamas/alpacas
- Digital photography to aid in diagnosis during bovine field necropsies
- Antimicrobial susceptibility patterns of *E. coli* and Salmonella in domestic animals
- Johnes disease diagnosis and immunopathogenesis of cattle
- Teaching hospital nosocomial infections
- Characterization of backyard poultry flocks in the US (PVM/MS)
- *Salmonella* surveillance in commercial and backyard poultry flocks

Small Animals

- Infectious diseases in animal shelters
- MRSA investigations and documentation
- Canine liver disease and iron accumulation
- Multiple oncology projects with many VTH and extramural clinicians and students

Wildlife and Epidemiology

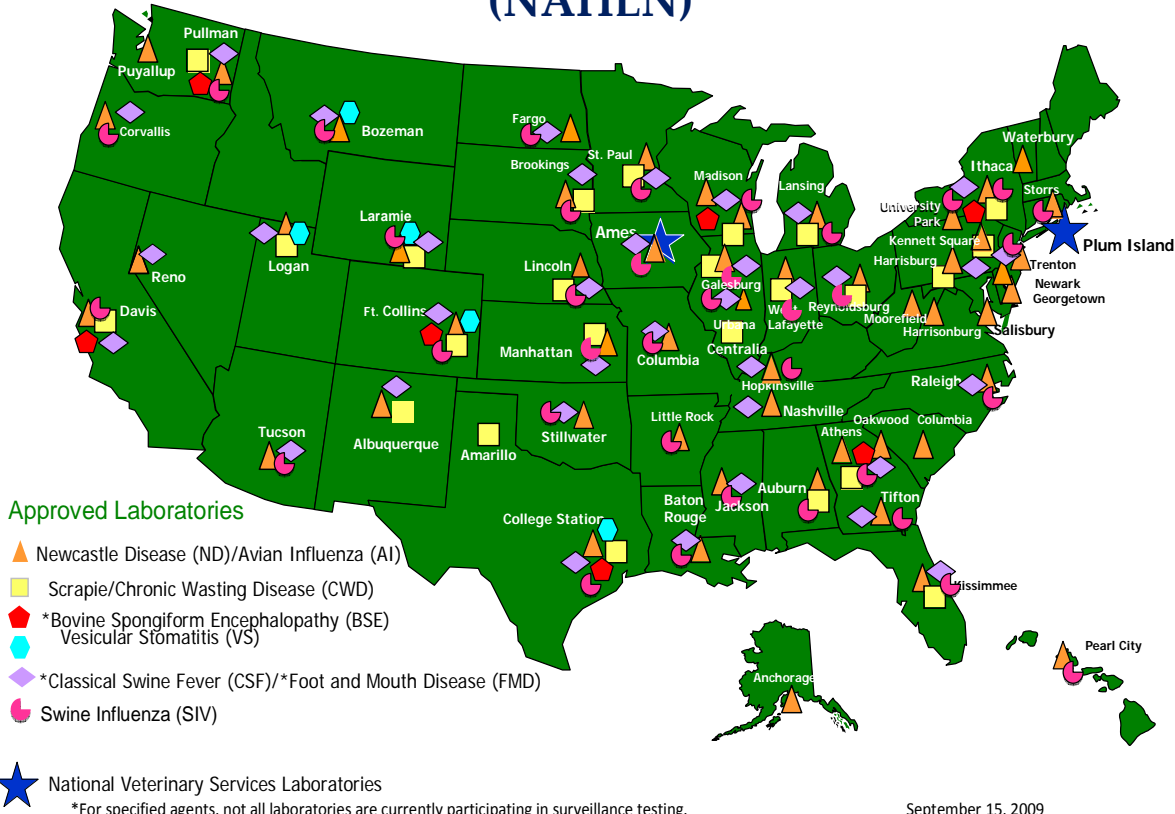
- Transmissible Spongiform Encephalopathy
 - Chronic wasting disease of deer and elk surveillance
 - Chronic wasting disease of deer and elk Pathogenesis (MS/PhD)
 - Bovine (BSE) surveillance: USDA reporting
 - Scrapie surveillance: USDA reporting
- BVD in deer: diagnosis, epidemiology and pathology
- Patterns and causes of skin cancer in sea turtles
- Incidence of Baylisascaris in raccoons
- Zoonotic diseases in raccoons
- Patterns of mortality in re-introduced Lynx in Southern Colorado (CDOW collaboration)
- Marine mammal mortalities
- Wildlife disease surveillance: the role of diagnostic laboratories
- Exotic Newcastle disease and avian influenza Surveillance in wild birds and domestic poultry (PVM/MS)
- Isolation and characterization of avian influenza viruses from wild birds
- Prevalence and epidemiology of avian influenza viruses in domestic duck populations in Indonesia (PhD)

2010 PROFICIENCY TESTS COMPLETED

Disease	Test	Section	Administering Agency
African Swine Fever Virus	Real-Time RT-PCR	Fort Collins BSL3	FADDL
Avian Influenza Virus	AGID	Fort Collins Avian Diagnostics	NVSL/NPIP
Avian Influenza Virus - Matrix, H5, H7	Real-time RT-PCR	Fort Collins BSL3	NVSL
Avian Paramyxovirus-1, vNDV	Real-time RT-PCR	Fort Collins BSL3	NVSL
<i>Bacillus anthracis</i>	Culture	Fort Collins Bacteriology	CDPHE
<i>Bacillus anthracis</i>	Culture	Fort Collins Bacteriology	LRN/CDC
<i>Bacillus anthracis</i>	Real-time PCR	Fort Collins BSL3	LRN/CDC
Bovine Leukosis Virus	AGID	Fort Collins Virology	NVSL
Bovine Leukosis Virus	AGID	Rocky Ford	NVSL
Bovine Spongiform Encephalopathy	ELISA	Fort Collins TSE	NVSL
Bluetongue Virus	AGID	Fort Collins Virology	NVSL
Bluetongue Virus	AGID	Rocky Ford	NVSL
Brucella abortus	Culture	Fort Collins Bacteriology	CDPHE
Brucellosis	Card Test	Fort Collins Bacteriology	CO Dept. of Ag
Brucellosis	Card Test	Rocky Ford	CO Dept. of Ag
Brucellosis	FPA Test	Rocky Ford	CO Dept. of Ag
Contagious Equine Metritis	Culture	Fort Collins Bacteriology	NVSL
Classical Swine Fever Virus	Real-time RT-PCR	Fort Collins BSL3	FADDL
Equine Infectious Anemia	AGID	Fort Collins Virology	NVSL
Equine Infectious Anemia	AGID	Rocky Ford	NVSL
Equine Infectious Anemia	AGID	Western Slope (Grand Junction)	NVSL
Foot and Mouth Disease Virus	Real-time RT-PCR	Fort Collins BSL3	FADDL
<i>Francisella tularensis</i>	Real-time PCR	Fort Collins BSL3	LRN/CDC
<i>Francisella tularensis</i>	Culture	Fort Collins Bacteriology	LRN/CDC
Johne's (<i>M. avian paraTB</i>)	ELISA	Fort Collins Bacteriology	NVSL
Johne's (<i>M. avian paraTB</i>)	ELISA	Rocky Ford	NVSL
Lead (Blood)	Graphite Furnace Atomic Absorption Spectrophotometry	Fort Collins Chemistry/Toxicology	Wisconsin State Laboratory of Hygiene
Leptospira	Micro-agglutination	Fort Collins Bacteriology	NVSL
Mycobacterium avium. subsp. Paratuberculosis	Solid Media	Fort Collins Bacteriology	NVSL
Mycobacterium avium. subsp. Paratuberculosis	TREK Liquid Media	Fort Collins Bacteriology	NVSL
<i>M. avium paraTB</i> (Johne's)	Direct PCR from feces	FC Bacteriology/Rocky Ford	NVSL
Pseudorabies Virus	Latex Agglutination	Fort Collins Virology	NVSL
Pseudorabies Virus	Latex Agglutination	Rocky Ford	NVSL
Pseudorabies Virus	Virus Neutralization	Fort Collins Virology	NVSL
Pseudorabies Virus	ELISA	Fort Collins BSL3	NVSL
Piroplasmosis	cELISA	Fort Collins BSL3	NVSL
<i>Salmonella</i> group D	Culture	Fort Collins Bacteriology	NVSL/NPIP

Rinderpest Virus	Real-Time RT-PCR	Fort Collins BSL3	NVSL
Scrapie	Immunohistochemistry	Fort Collins TSE	NVSL
Vesicular Stomatitis Virus	Complement Fixation	Fort Collins BSL3	NVSL
<i>Yersinia pestis</i>	Culture	Fort Collins Bacteriology	CDPHE
<i>Yersinia pestis</i>	Real-time PCR	Fort Collins BSL3	LRN/CDC
<i>Yersinia pestis</i>	Culture	Fort Collins Bacteriology	LRN/CDC

National Animal Health Laboratory Network (NAHLN)



September 15, 2009

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report

**COLORADO STATE UNIVERSITY
VETERINARY DIAGNOSTIC LABORATORY
2009-10 ACCESSION STATISTICS**

FORT COLLINS

	09-10	08-09	07-08	06-07	05-06	04-05
Accessions	108,938	100,624	111,123	131,750	209,952	197,256
Animals	158,759	151,372	161,213	152,965	266,791	254,087
Tests Performed	339,123	314,507	319,930	341,400	372,231	345,102

BY SECTION

	09-10	08-09	07-08	06-07	05-06	04-05
Administrative	45,903	44,838	46,148	41,006	40,889	42,344
Avian	6,234	5,067	6,935	5,497	4,275	
Bacteriology	19,464	19,169	17,368	17,665	17,533	17,353
Bacti-Serology	6,527	10,591	10,671	11,965	15,514	15,396
BSL3	10,698	445				
Chemistry	8,515	7,984	7,849	8,038	10,564	11,383
Clinical Path	9,314	9,392	9,106	9,158	9,161	7,971
Endocrinology	3,218	2,843	2,762	2,742	2,769	2,875
Food Safety	1,246	2,284	2,699	4,016	4,585	3,288
Histology	85,900	76,570	75,210	76,159	10,800	5,782
M. Diagnostics	2,555	3,398	3,571	4,574	4,531	
Necropsy	1,678	1,543	1,609	1,526	1,567	
Pathology	37,527	35,746	38,149	41,441	35,206	35,041
Parasitology	6,524	7,876	7,289	5,132	6,852	5,161
Special Sero	14,441	13,989	14,853	14,852	13,904	13,858
TSE	33,976	25,078	30,440	50,106	135,206	124,572
Virology	4,286	4,328	5,140	6,762	14,288	23,053
Viro Serology	40,732	43,366	39,209	40,625	44,577	37,025

This represents an 8.3% increase in accessions, a 4.9% increase in the number of animals tested, and a 7.8% increase in the number of tests performed compared to the previous year. Avian, BSL3, Chemistry, Endocrinology, Histology, Pathology and TSE showed the largest increases while other areas stayed the same or decreased.

ROCKY FORD

	09-10	08-09	07-08	06-07	05-06	04-05
Accessions	13,808	13,248	13,461	10,483	10,801	10,496
Animals	82,909	111,150	102,111	118,594	101,646	33,515
Tests Performed	92,219	122,581	112,542	125,328	108,970	40,163

BY SECTION

	09-10	08-09	07-08	06-07	05-06	04-05
Administrative	3,634	4,024	4,363	3,648	1,951	1,174
Bacteriology	1,731	1,483	1,438	1,461	1,788	1,570
Bacti-Serology	630	762	2,199	1,723	2,227	1,355
Chemistry	895	740	817	809	887	913
Clin Path	746	738	805	799	872	824
Endocrinology	242	251	346	336	285	346
Histology	1	68	30	5	4	32
Pathology	356	423	479	424	524	1,897
Parasitology	16,839	19,635	19,227	3,872	3,882	1,807
Virology	57,475	78,403	73,470	98,627	84,407	13,912
Viro-Serology	9,670	16,054	9,368	13,678	12,127	16,333

This represents a 4.2% increase in number of accessions, a 25.4% decrease in number of animals tested and a 24.8% decrease in number of tests performed compared to the previous year. The decreases were in Parasitology, Virology and Virology-Serology.

WESTERN SLOPE

	09-10	08-09	07-08	06-07	05-06	04-05
Accessions	3,608	3,528	3,799	3,479	2,728	2,715
Animals	20,770	16,879	16,366	16,395	15,208	14,945
Tests Performed	24,073	20,408	19,585	19,131	17,822	16,672

BY SECTION

	09-10	08-09	07-08	06-07	05-06	04-05
Administrative	3,736	2,147	1,523	1,91	777	864
Bacteriology	1,448	1,292	1,410	1,266	674	492
Bacti-Serology	11,458	8,765	9,119	9,446	9,322	8,935
Chemistry	153	187	123	102	14	27
Clinical Path	138	104	4	1		0
Endocrinology	7	5	4			0
M. Diagnostics	244	234				
Pathology	918	1,005	1,071	774	219	256
Parasitology	3,120	3,453	2,988	2,894	2,740	2,807
Virology	487	567	469	554	371	333
Viro-Serology	2,351	2,619	2,874	2,903	3,705	2,958

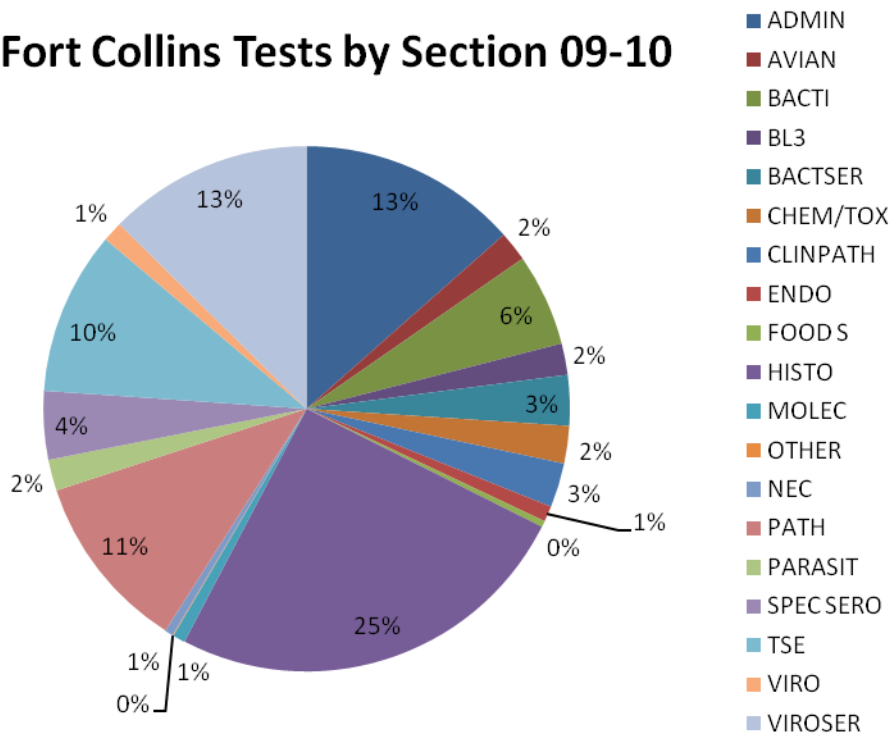
This represents a 2.3% increase in accessions, a 23.1% increase in number of animals tested and an 18.0% increase in number of tests performed compared to the previous year. Bacteriology and Bacteriology-Serology showed the largest increases.

ALL LABS

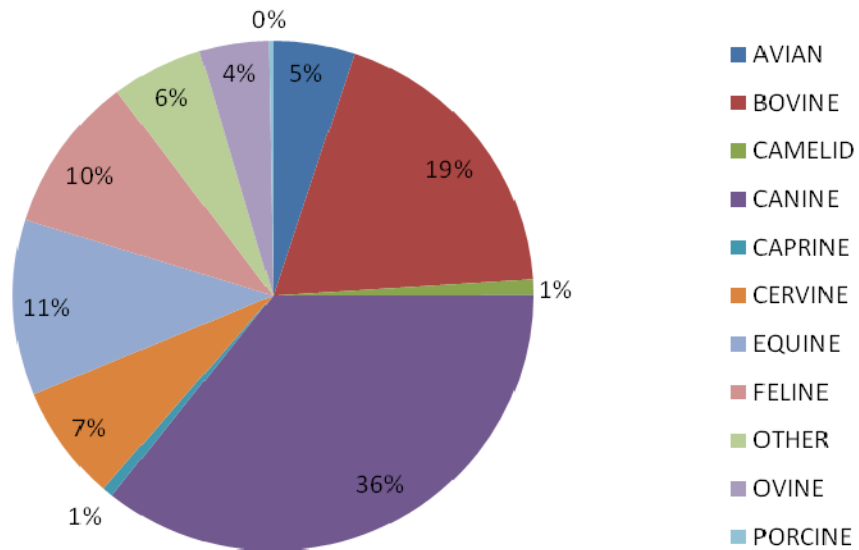
	09-10	08-09	07-08	06-07	05-06	04-05
Accessions	126,354	117,400	128,383	145,712	223,481	210,467
Animals	262,438	279,401	279,690	287,954	383,645	302,547
Tests Performed	455,415	457,976	452,057	485,769	499,023	401,937

This represents a 7.6% increase in accessions, a 6.1% decrease in number of animals tested and a 5.6% decrease in number of tests performed compared to the previous year.

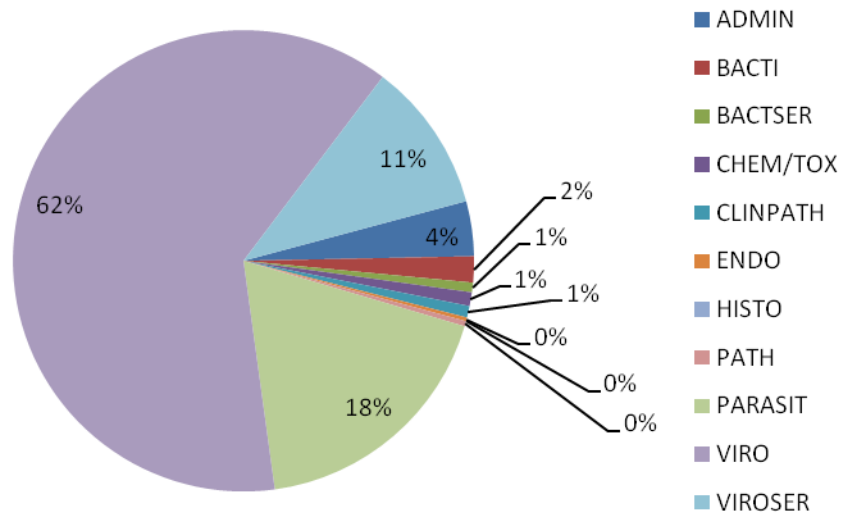
Fort Collins Tests by Section 09-10



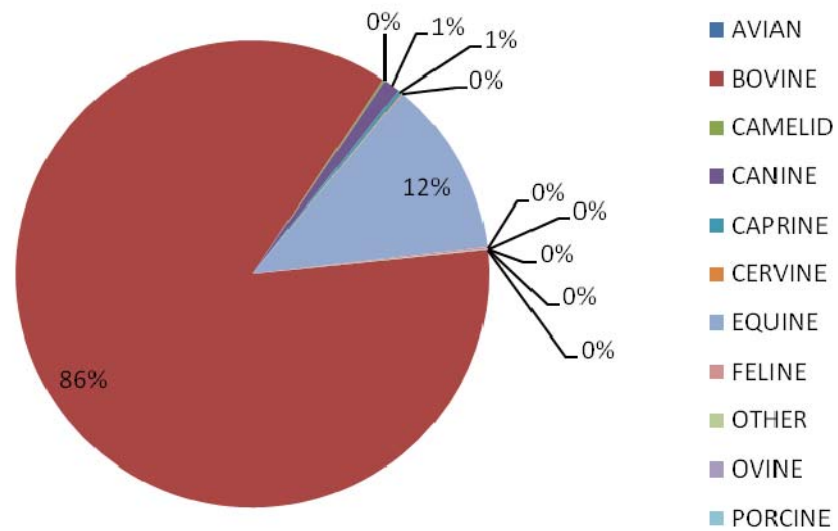
Fort Collins species 09-10



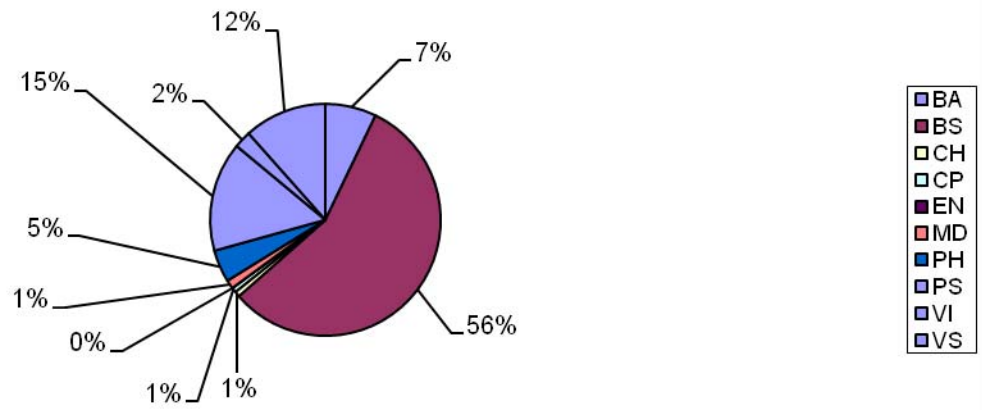
Rocky Ford Tests by Section 09-10



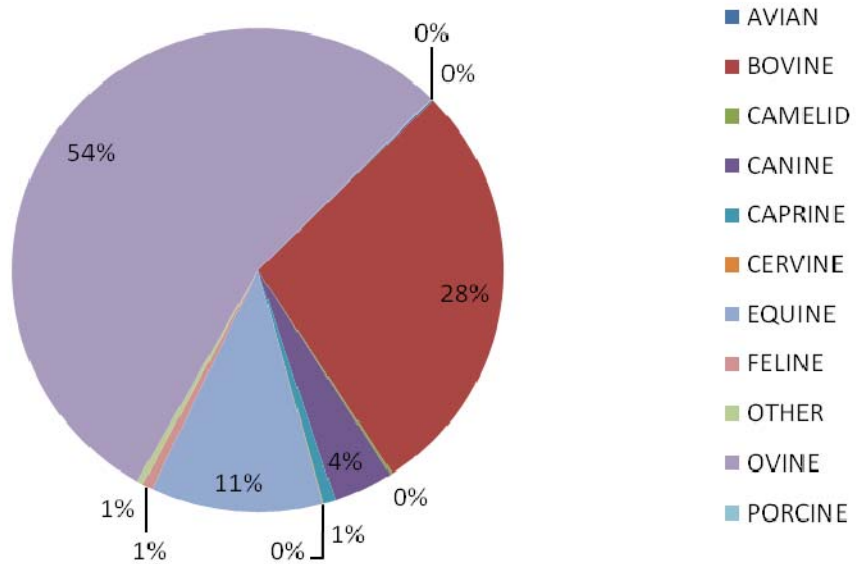
Rocky Ford species 09-10



Western Slope Tests by Section 2009 - 10



Western Slope species 09-10



PATHOLOGY

The table below indicates the number of necropsies performed for the listed species. The first column is cases derived from the Veterinary Teaching Hospital (VTH) and the second column is cases from the state or region. The next two columns are the totals for the last two fiscal years and the final column is the percent change from the fiscal year 09/10 compared to fiscal year 08/09. Cases from the VTH increased by 57 (8.0%), while cases from the state and region increased by 114 (13.2%).

NECROPSY

Species	VTH 7/09-6/10	State/Region 7/09-6/10	TOTAL 7/09-6/10	TOTAL 7/08-6/09	% Change
Bovine	64	69	133	154	-13.6
Equine	141	40	181	182	-0.5
Porcine	2	4	6	11	-45.5
Ovine/Caprine	28	41	69	44	56.8
OLA*	30	30	60	60	0.0
Canine	346	428	774	689	12.3
Feline	79	130	209	196	6.6
Other Small Animal	41	25	66	43	53.5
Avian	26	105	131	93	40.9
Wildlife/Zoo	10	107	117	103	13.6
TOTAL	767	979	1,746	1,575	10.9

*OLA = Other Large Animal

TRANSMISSIBLE SPONGIFORM ENCEPHALOPATHY TESTING

Test	# Accessions 7/09-6/10	# Samples 7/09-6/10	# Samples Positive	Number 7/08-6/09	% Change
Captive Elk Surveillance	1,200	2,682	20	3,381	-20.7
CWD Surveillance	412	769	25	2,300	-66.6
CWD—ELISA CO & Others*	7,710	7,710	106	11,006	-29.9
USDA TSE	138	10,662	NA	4,322	146.7
USDA BSE	12,942	12,942	0	5,898	119.4
TOTAL	22,402	34,765	151	26,907	29.2

*3,614 Colorado only.

The top table indicates the number of abortion screens for the listed species for the last two fiscal years. The last column of the top table indicates the percent change of fiscal year 09/10 from fiscal year 08/09. The bottom table indicates the number of specific diagnoses or causative agents identified for abortions in fiscal year 09/10. The last column of the bottom table indicates the number and percentage of abortions with undetermined cause.

ABORTION SCREENS

Species	Number 7/09-6/10	%	Number 7/08-6/09	% Change
Bovine	46	59.0	64	-28.1
Equine	11	14.1	19	-42.1
Porcine	0	0.0	0	0.0
Ovine	9	11.5	0	100.0
Caprine	6	7.7	5	20.0
Camelid	2	2.5	5	-60.0
Other	4	5.1	3	33.3
TOTAL	78	100.0	96	-18.8

Species	Number Examined	Viral (%)	Bacterial (%)	Other (%)	Undeter- Mined(%)
Bovine	46	26(56.5) ^a	4(8.7)	5(10.9) ^b	12(26.1)
Equine	11	0(0.0)	0(0.0)	0(0.0)	11(100.0)
Porcine	0	0(0.0)	0(0.0)	0(0.0)	0(0.0)
Ovine	9	0(0.0)	5(55.6) ^d	3(33.3) ^e	1(11.1)
Caprine	6	0(0.0)	0(0.0)	0(0.0)	6(100.0)
Camelid	2	0(0.0)	0(0.0)	0(0.0)	2(100.0)
TOTAL	46	26(56.5)	9(19.6)	8(17.4)	32(69.6)

^a16 with IBR, 10 with BVD (7 both IBR and BVD)

^bHigh ocular nitrates

^cCongenital abnormalities

^d1 Campylobacter

^e1 Chlamydia, 2 congenital abnormalities

The top table indicates the number of diarrhea screens performed in the last two fiscal years. The last column of the top table indicates the percent change of fiscal year 09/10 compared to fiscal year 08/09. The bottom table indicates the determined causes of the diarrhea over the number of times the agents were tested for, and the percentages of detection of the agent are given in parentheses. In many cases, more than one agent was detected.

DIARRHEA SCREENS

Species	Number 7/09-6/10	%	Number 7/08-6/09	% Change
Bovine	53	53.0	66	-19.7
Equine	1	1.0	10	-90.0
Porcine	0	0.0	0	0.0
Ovine/Caprine	4	4.0	3	33.3
Canine	26	26.0	25	4.0
Feline	12	12.0	11	9.1
Cervids	0	0.0	4	-100.0
Other	4	4.0	8	-50.0
TOTAL	100	100.0	127	-21.3

Species	Rota	Corona	E. coli	Salmonella	Clostridia	Cryptosporidia	Other	Undetermined
Bovine	18/53 (34.0)	5/53 (9.4)	6/53 (11.3)	9/53 (17.0)	4/53 (7.5)	15/53 (28.3)	10/53 (18.9) ^a	12/53 (22.6)
Equine	0/1 (0.0)	0/1 (0.0)	0/1 (0.0)	0/1 (0.0)	0/1 (0.0)	0/1 (0.0)	0/1 (0.0)	1/1 (100.0)
Ovine/ Caprine	0/4 (0.0)	0/4 (0.0)	0/4 (0.0)	0/4 (0.0)	0/4 (0.0)	1/4 (25.0)	1/4 (25.0) ^b	2/4 (50.0)
Camelid	0/4 (0.0)	0/4 (0.0)	0/4 (0.0)	0/4 (0.0)	0/4 (0.0)	0/4 (0.0)	0/4 (25.0)	3/4 (75.0)
Canine	0/26 (0.0)	0/26 (0.0)	1/26 (3.8)	1/26 (3.8)	2/26 (7.7)	0/26 (0.0)	4/26 (15.4) ^c	16/26 (61.5)
TOTAL	18/88 (20.5)	5/88 (5.7)	7/88 (8.0)	10/88 (11.4)	6/88 (6.8)	16/88 (18.2)	16/88 (18.2)	34/88 (38.6)

^aCoccidia (7) or Strongyles (1) or BVD (2)

^bCoccidia

^cCoccidia and Parvovirus

^dLymphoma

The first two columns of the top table indicate the number of biopsies performed for each of the listed species for the Veterinary Teaching Hospital (VTH) and the state or country. The last three columns indicate the total for the last two fiscal years and the percent change of fiscal year 09/10 compared to fiscal year 08/09. The VTH cases increased by 40 cases (3.2%) while the state/country cases increased by 420 cases (1.4%). The bottom table indicates the number and percentage of certain diagnoses given for both the VTH and state/country.

BIOPSY

SPECIES	VTH 7/09-6/10	State/Country 7/09-6/10	Total 7/09-6/10	Total 7/08-6/09	% Change
Canine	1,065	24,682	25,747	25,485	1.0
Feline	131	4,360	4,491	4,411	1.8
OSA	16	191	207	204	1.5
Avian	8	41	49	54	-9.3
Equine	61	611	672	667	0.7
Bovine	1	231	232	176	31.8
Porcine	0	2	2	9	-77.8
Ovine/Caprine	1	53	54	98	-44.9
Other/Unknown	10	469	479	369	29.8
TOTAL	1,293	30,640	31,933	31,473	1.5

*Of this total, 444 were 2nd opinion consultations from outside the Laboratory, and 221 were dermatology-specific cases.

Diagnosis	VTH(%)	State/Country (%)	TOTAL (%)
Benign Tumor	332(20.5)	9,235(32.4)	9,567(31.8)
Sarcoma	557(34.4)	8,884(31.2)	9,441(31.4)*
Carcinoma	237(14.6)	3,534(12.4)	3,771(12.5)
Skin Disease	140(8.6)	2,456(8.6)	2,596(8.6)
Liver Disease	157(9.7)	2,360(8.3)	2,517(8.4)
GI Disease	197(12.2)	2,012(7.1)	2,209(7.3)

*2,723 (28.8%) of these were mast cell tumors.

- There were 238 biopsies referred from the Rocky Ford Branch Laboratory. Of these, 184 (77.3%) were canine, 18(7.6%) were feline, 30(12.6%) were equine and 6(2.5%) were other species.

UTERINE BIOPSIES

The top table indicates the number of uterine biopsies for the last two fiscal years, and the percent change of fiscal year 09/10 compared to fiscal year 08/09. The bottom table indicates the distribution and percentages of the different grades given to the uterine biopsies.

Species	Number 7/09-6/10	%	Number 7/08-6/09	% Change
Equine	571	99.5	699	-18.3
Other	3	0.5	3	0.0
TOTAL	574	100.0	702	-18.2

Grade	Number	%
1A	152	26.5
1B	224	39.0
2A	78	13.6
2B	91	15.9
3A	19	3.3
3B	1	0.2
NA/Unknown	8	1.4

HISTOLOGY

The table below lists the number of slides, special stains and immunohistochemical (IHC) stains performed by the Histology Laboratory.

Procedure	Number 7/09-6/10	%	Number 7/08-6/09	% Change
H&E Slides/Biopsies (non-VTH only)	63,091	73.7	54,363	16.1
H&E Slides/Research	12,739	14.9	11,471	11.1
H&E Slides/Necropsy (estimated)	6,984	8.2	4,725	47.8
Special Stains	1,899	2.2	1,732	9.6
IHC Stains				
BVD	56	0.1	203	-72.4
CD3/CD79a	209	0.2	209	0.0
CD18	170	0.2	103	65.0
c-Kit	64	0.1	23	178.2
Chromagranin	19	0.0	17	11.8
Cytokeratin	87	0.1	72	20.8
Desmin	40	0.0	32	25.0
FIP	19	0.0	22	-13.6
Factor 8	30	0.0	40	-25.0
Leptospirosis	5	0.0	67	-92.5
Melan A	62	0.1	29	114.8
Neospora	1	0.0	5	-80.0
Synaptophysin	16	0.0	14	14.3
Vimentin	71	0.1	57	24.6
Other	25	0.0	32	-21.9
TOTAL	85,587	100.0	73,033	17.2

BACTERIOLOGY

This table lists the different cultures and selected other tests performed by the bacteriology, molecular diagnostics or avian sections. The total number of tests performed in fiscal year 09/10 is compared to the total number of tests performed in fiscal year 08/09. The last column is the percent change between the fiscal years.

Test	Number 7/09-6/10	Number Positive %	Number 7/08-6/09	% Change
Aerobic Culture	5,602	NA	5,187	8.0
Aerobic & Anaerobic Culture	1,686	NA	1,631	3.4
Fecal Culture	2,947	NA	3,227	-8.7
Clostridial Fecal Culture	233	114(48.9)	238	-2.1
PCR Clostridial Genotype	17	17(100.0) ^a	10	70.0
Clostridial perfringens/ Toxin	99	10(10.0)	117	-15.4
PCR <i>E. coli</i> multiplex	6	1(16.7) ^b	1	500.0
Mycobacterial Culture/PCR	87	5(5.7)	104	-16.3
Blood Culture	92	NA	90	2.2
Campylobacter Culture	427	1(0.2)	417	2.4
Mycoplasma Culture	282	59(20.9)	276	2.2
CEM Culture	213	0(0.0)	547	-61.1
Fungal Culture	523	164(31.4)	395	32.4
PCR Leptospirosis	109	1(0.9)	92	18.5
Antimicrobial Susceptibility	6,209	NA	5,982	3.8
Environmental Culture	1,255	54(4.3)	1,466	-14.4
Plate Counts	15	NA	118	-87.3
MRSA Culture	821	317(38.6)	101	712.9
TOTAL	20,623	NA	19,999	3.1

^a16 type A, 1 type Beta

^bK88, positive

The table below lists a breakdown of selected culture tests by species.

SPECIES	Aerobic Culture	Aerobic/ Anaerobic Culture	Fecal Culture	Clostridial Fecal Culture	Mycoplasma Culture	Fungal Culture	TOTAL 7/09-6/10	%
Bovine	435	35	596	57	44	13	1,180	10.5
Equine	1,248	225	1,439	64	1	159	3,136	27.8
Porcine	6	0	50	2	0	0	58	0.5
Ovine/ Caprine	193	17	81	13	8	8	320	2.8
OLA	41	24	142	17	1	3	228	2.0
Canine	2,431	1,080	184	45	163	200	4,103	36.4
Feline	829	165	127	12	53	90	1,276	11.3
OSA	26	28	6	3	4	1	68	0.6
Avian	33	6	16	6	3	3	67	0.6
Zoo/Wildlife	53	36	16	12	2	8	127	1.1
Non-Animal	272	39	284	1	0	26	622	5.5
Unknown	35	31	6	1	3	12	88	0.8
TOTAL	5,602	1,686	2,947	233	282	523	11,273	100.0

The table below lists the serology tests performed in the bacteriology section with the number of tests performed in fiscal year 09/10 compared to the number of tests performed in fiscal year 08/09. The last column is the percent change between the fiscal years. In the middle column are selected results for some of the serologic tests.

TEST	Number 7/09-6/10	Positive (%)	Number 7/08-6/09	% Change
Mycobacterium paratuberculosis (ELISA)	4,808	Suspect-62(1.3) Low pos-13(0.3) Pos-40(0.8) Strong Pos-63(1.3)	3,692	30.2
M. paratuberculosis AGID	104	10(9.6)	73	42.5
Brucella abortus	332	0(0.0)	655	-49.3
Brucella canis	113	0(0.0)	237	-52.3
Leptospirosis (5 serovars)	798x5=3,990 ^a	525(13.2)	825x5=4,125	-3.3
Lepto Bratislava	108	17(15.7)	127	-15.0
C Titer	0	NA	5	-100.0
Fungal Panel	112	NA	109	2.8
Aspergillosis	136	1(0.7)	123	10.6
Blastomycosis	113	0(0.0)	111	1.8
Coccidiomycosis	145	10(6.9)	133	9.0
Histoplasmosis	114	0(0.0)	111	2.7
Cryptococcus	199	12(6.0)	170	17.1
IgG Estimate	14	NA(-)	27	-48.1
IgG Quantitation	249	NA(-)	310	-19.7
IgA&IgM Quantitation	289	NA(-)	216	33.8
Protein Electrophoresis	141	NA(-)	87	62.1
Immunoelectrophoresis	52	NA(-)	31	67.7
ANA Titer	23	2(8.7)	35	-34.3
TOTAL	11,042	--	10,377	6.4

^a334 bovine, 24 equine, 155 canine, 7 camelids, and 5 zoo had titers $\geq 1:100$

The table below lists the food safety diagnostic testing for the last two fiscal years and the percent change between the two fiscal years.

Test Performed	Number 7/09-6/10	Number 7/08-6/09	% Change
Milk Culture	252	63	300.0
Mycoplasma screen	101*	287	-64.8
Milk Mycoplasma Culture/PCR	12	84	-85.7
Milk Culture Screen	554	1,246	-55.5
Aerobic feed culture	243	365	-33.4
TOTALS	1,162	2,045	-43.2

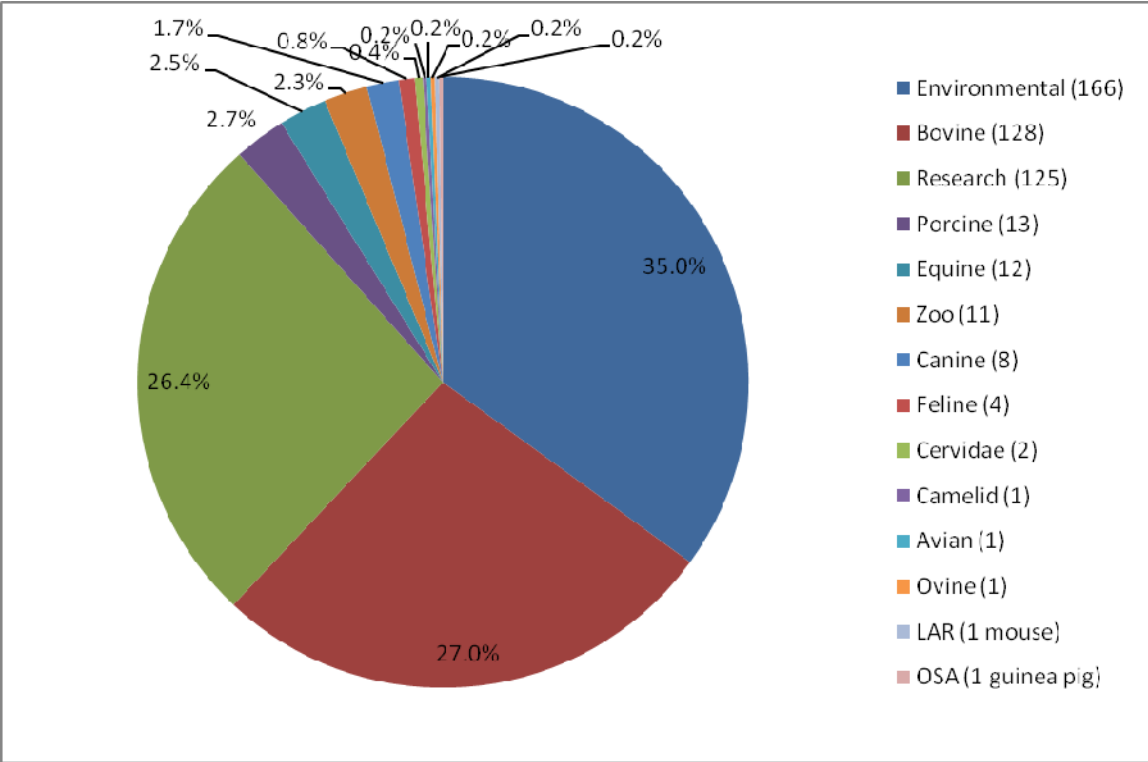
*0 positive

Salmonella isolations at the CSU-VDL between July 1, 2009 and June 30, 2010. The number of isolates from each animal species is given for the previous year in parenthesis for comparison. Serotypes found for 2009-2010 are in bold script, while those serotypes found in previous years are not in bold.

Species	# Isolated This Year [2007/08] {2006/07} (2005/06) [2009/10]	Serotypes
Amphibian	2 [1] {0} (0) [0]	Montevideo, Kisarawe
Avian	3 [1] {5} (2) [2]	III_40:z 36:- , Typhimurium, Senftenberg, Thompson, Newport
Bovine	229 [235]{160} (113) [128]	Agona, Anatum , Barranquilla, Bredeney, Cerro , Cubana, Dublin , Enteritidis , Give, Havana, Infantis, Kentucky , London, Mbandaka , Meleagridis , Montevideo , Muenchen , Muenster , Newport , Reading, Schwarzengrund, Typhimurium , Uganda, Heidelberg , Pomona, Senftenberg, Soerenga, 9,12:nonmotile, Rough_O:gms:- , 3,10:-:l,w , Bietri
Camelid (Alpaca)	3 [11] {8} (0) [2]	Livingstone , Newport, Typhimurium, Give
Canine	5 [4] {3} (8) [8]	Newport, Infantis, Dublin, Senftenberg, Anatum, Kiambu, Montevideo, Typhimurium, Agona, Mbandaka, Schwarzengrund, Livingstone , Oranienburg
Caprine	2 [0] {1} (1) [0]	Mbandaka, Newport
Equine	54 [54] {22} (10)	Berta, Braenderup, Newport, Rubislaw, Saintpaul, Typhimurium , Mbandaka , Montevideo , Muenster , Havana, Infantis, Schwarzengrund, Amsterdam, Give var 15+, 34+, Oranienburg , Putten, Senftenburg, 6,8:e,h:-, Untypable, 4,12:i,-, Enteritidis, 8,20:-:z6, 6,7:r:-, Meleagridis, Connstatt, Hartford , Ohio
Feline	0 [1] {3} (4) [4]	Newport, Tennessee, Untypable, Typhimurium, Senftenberg
Environmental/Research	178 [185] {150} (50) [291]	Cerro , Meleagridis , Muenchen , Muenster, Sandiego, Kokomlemlle, Newport , Norwich, Panama, Senftenberg , Altona, Bareilly , Infantis, Kentucky , Mbandaka , Montevideo , Oranienburg, Taksony, Typhimurium , Uganda, Serotype III 61,-:1,5,7, Give, 9,12:nonmotile, Dublin, Untypable, 4,12:I,-, Enteritidis , Johannesburg, Putten ,

		Schwarzengrund, Heidelberg, Agona, Anatum, Lille, Kiambu, Hartford, Saintpaul, Braenderup, Lexington, Thompson, Ohio
New World Camelid	6	Dublin, Sandiego, Typhimurium
Ovine	2 [1]	Dublin , Serotype III 61,-:1,5,7
Zoo (Seal lions)	79 [28] {1} (0) [11]	Montevideo, Newport , Typhimurium, Reading, Saintpaul, Muenster
Porcine	0 [3] [13]	Choleraesuis
Other small animal (fox), [guinea pig]	1 [1]	Enteritidis
Cervidae	[2]	Typhimurium var 5-
LAR (mouse)	[1]	4,12:I;-

Salmonella Isolations by Animal Species – 07/01/09-06/30/10



Methicillin resistant *Staphylococcus aureus*

The Colorado State University Veterinary Diagnostic Laboratories have been screening *Staphylococcus aureus* for resistance to methicillin for the past few years. Historically, methicillin resistant *Staphylococcus aureus* (MRSA) are resistant to all beta-lactam antimicrobials including the cephalosporins and carbapenems. With the zoonotic potential of these organisms, and the increasing reports of the transmission of MRSA from human owners to animals, this cumulative profile was generated of the *Staphylococcus aureus* isolated from canine and feline samples. Also included is the percent of those isolates susceptible to oxacillin (the screening drug for methicillin resistance).

Year	Canine		Feline	
	Number isolated	Percent susceptible	Number isolated	Percent Susceptible
2001-02	47	85	7	100
2002-03	54	80	13	92
2003-04	66	73	10	90
2004-05	50	60	6	67
2005	46	54	11	91
2006	67	64	15	80
2007	63	73	17	88
2008	77	74	10	100
2009*	69	78	11	91
2009-10**	78	64	29	69

From 7/1/08-6/30/09 there were 27 isolates of *Staphylococcus aureus* from horses. Of those 27 isolates, 81% were susceptible to oxacillin.

From 7/1/09-6/30/10 there were 28 isolates of *Staphylococcus aureus* from horses. Of those 28 isolates, 86% were susceptible to oxacillin. Additionally we had one isolate from a bird and it was resistant to oxacillin.

***Corynebacterium pseudotuberculosis* in Colorado Update.**

Corynebacterium pseudotuberculosis infections cause a disease in equids commonly referred to as “pigeon fever,” “pigeon breast,” or “dryland distemper” and are the most common cause of ulcerative lymphangitis in equids. As mentioned in our 2000, 2001, and 2002 LabLines, before 1999 the CSU Veterinary Diagnostic Laboratory annually reported approximately one isolation of *C. pseudotuberculosis* from horses statewide. That changed in 2002 when we had a high of 89 isolations in the calendar year. Whether that increase was because of an increased prevalence or because of an increased awareness of the disease is unknown, but the number of isolations has steadily decreased since 2002. Again, whether the decrease is because of an actual decrease in disease or a decrease in the number of cultures performed is unknown. Recently there have been media reports of increased numbers of cases in Colorado. As such, updated statistics of the number of isolations of *C. pseudotuberculosis* from horses in the past 9 years are given in the following table.

From July 1st 2009 to June 30th in 2010 a total of 108 tests for *L. bratastava* were conducted and 17 were positive with the highest titer being 1:6400.

VIROLOGY

These tables indicate the number of different tests done for viruses by the virology and molecular diagnostics for the last two fiscal years, and the last columns indicate the percent change of fiscal year 09/10 compared to fiscal year 08/09. The middle column of some tables indicate the number (and percentage) of positive tests.

BOVINE VIRAL DIAGNOSTICS

Virus Name	Test Performed	Number 7/09-6/10	Number Positive	Number 7/08-6/09	% Change
BVDV	VI/VI ELISA	194	8(4.1)	217	-10.6
BVDV	PCR	134	4(3.0)	122	9.8
BVDV	IHC	203	2(1.0)	20	915.0
BVDV	FA	510	103(20.2)	505	1.0
BVDV	Capture ELISA	1,072	3(0.3)	1,310	-18.2
IBRV	VI	194	2(1.0)	217	-10.6
IBRV	FA	465	186(40.0)	438	6.2
BHV	PCR	211	90(42.7)	72	193.1
BRSV	VI	194	0(0.0)	217	-10.6
BRSV	PCR	8	0(0.0)	10	-20.0
BRSV	FA	131	6(4.6)	102	28.4
PI3	VI	194	0(0.0)	217	-10.6
PI3	FA	99	0(0.0)	109	-9.2
Coronavirus	FA	179	23(12.8)	168	6.5
Rotavirus	ELISA	177	64(36.2)	158	12.0
Chlamydia	PCR	12	0(0.0)	9	33.3
Bluetongue	PCR	131	0(0.0)	76	72.4
Mycoplasma	PCR	33	22(66.7)	77	-57.1
OHV-2	PCR	10	5(50.0)	6	66.7
BLV	PCR	30	0(0.0)	766	-96.1
TOTALS		3,599	--	4,165	-13.6

BOVINE VIRAL SEROLOGY

Virus Name	Test Performed	Number 7/09-6/10	Number 7/08-6/09	% Change
BVD-I	SN	2,461	1,584	55.4
BVD-II	SN	2,442	1,540	58.6
BRSV	SN	1,943	1,039	87.0
IBR	SN	2,165	1,383	56.5
PI-3	SN	1,940	1,038	86.9
VSV (2 strains)	SN	128	114	12.3
BLV	AGID	675 ^a	53	1173.6
BT	AGID	665 ^b	32	1978.1
TOTALS		12,419	6,783	83.1

^a67/675(9.9%) positive

^b28/665(4.2%) positive

EQUINE VIRAL DIAGNOSTICS

Virus Name	Test Performed	Number 7/09-6/10	Number Positive(%)	Number 7/08-6/09	% Change
EHV-1	VI	8	0(0.0)	12	-33.3
EHV-1	FA	7	2(28.6)	39	-82.1
EHV-1/-4	PCR	115	6(5.2)	151	-23.8
Influenza	PCR	46	10(21.7)	29	58.6
West Nile	PCR	6	0(0.0)	6	0.0
EVA	PCR	18	0(0.0)	45	-60.0
Rotavirus	ELISA	6	0(0.0)	20	-70.0
TOTALS		206	--	302	-31.8

EQUINE VIRAL SEROLOGY

Virus Name	Test Performed	Number 7/09-6/10	Number 7/08-6/09	% Change
EHV-1	SN	198	206	-3.9
EHV-4,EHV-3	SN	57	363	-84.3
EVA	SN	5,354 ^a	7,067	-24.2
Influenza/A1&A2	HI	138	119	16.0
EIA	AGID or ELISA	4,680 ^b	5,199	-10.0
VSV	SN(2 strains)	66	74	-10.8
West Nile	IgM ELISA	137 ^c	106	29.2
TOTALS		10,630	13,134	-19.1

^a134/5,354(2.5%) positive

^bZero positive

^c23/137(16.8%) positive

PORCINE VIRAL DIAGNOSTICS

Virus Name	Test Performed	Number 7/09-6/10	Number Positive (%)	Number 7/08-6/09	% Change
Influenza	PCR	0	0(0.0)	2	-100.0
Mycoplasma	PCR	2	2(100.0)	4	-50.0
Rotavirus	ELISA	6	2(33.3)	1	83.3
PRV/PRRS	VI	1	0(0.0)	0	100.0
PRRS	PCR	7	0(0.0)	7	0.0
TGE	FA	5	0(0.0)	3	66.7
TOTALS		21		25	-16.0

OVINE/CAPRINE/LLAMA/CERVID VIRAL DIAGNOSTICS

Virus Name	Test Performed	Number 7/09-6/10	Number Positive(%)	Number 7/08-6/09	% Change
BVDV	VI	1	0(0.0)	12	-91.7
BVDV	FA/IHC	23	0(0.0)	49	49.0
BVDV	PCR	468	1(0.2)	725	-35.4
BVD	SN	285	NA	318	-10.4
BRSV	SN	100	NA	109	-8.3
BRSV	FA/PCR	3	0(0.0)	13	-76.9
IBR	FA/PCR	21	2(9.5)	34	-38.2
IBR	SN	32	NA	3	966.7
PI3	FA	1	0(0.0)	6	-83.3
PI3	SN	87	NA	109	-20.2
BT	AGID	242	80(33.1)	43	462.8
BT	PCR	32	0(0.0)	10	220.0
EHD	AGID	35	3(8.6)	25	40.0
EHD	PCR	12	2(16.7)	2	50.0
EHV	FA/PCR	15	0(0.0)	23	-34.8
Coronavirus	FA	7	0(0.0)	18	-61.1
Rotavirus	ELISA	9	0(0.0)	21	-57.1
OPP	AGID	310	59(19.0)	149	108.1
OPP	PCR	3	0(0.0)	12	-75.0
CAE	AGID	473	25(5.3)	437	8.2
CAE	PCR	65	15(23.1)	47	38.3
CAE	cELISA	0	0(0.0)	0	0.0
Caprine Herpes	PCR	2	0(0.0)	4	-50.0
Chlamydia	PCR	48	5(10.4)	30	60.0
Mycoplasma	PCR	41	21(51.2)	108	-62.0
OHV-2	PCR	0	0(0.0)	5	-100.0
West Nile	PCR	9	0(0.0)	7	28.6
TOTAL		2,374		2,319	23.7

FELINE VIRAL DIAGNOSTICS

Virus Name	Test Performed	Number 7/09-6/10	Number Positive(%)	Number 7/08-6/09	% Change
FHV-1	PCR	242	30(12.4)	287	-15.7
FHV-1	VI	0	0(0.0)	0	0.0
Calicivirus	PCR	80	10(12.5)	127	-37.0
FPV	SNAP/PCR	38	9(23.7)	32	18.8
FeLV	ELISA	73	2(2.7)	66	10.6
FIV	ELISA	73	1(1.4)	66	10.6
FIV	PCR	28	11(39.3)	21	33.3
Chlamydia	PCR	201	35(17.4)	287	-30.0
Mycoplasma	PCR	75	12(16.0)	68	10.3
Corona/FIP	PCR	39	1(2.6)	49	-20.4
TOTALS		849	--	1,003	-15.4

FELINE VIRAL SEROLOGY

Virus Name	Test Performed	Number 7/09-6/10	Number 7/08-6/09	% Change
FIP	IFA	114	114	0.0
FCV	SN	593	885	-33.0
FHV	SN	621	896	-30.7
FPV	HI	1,069	841	27.1
TOTALS		2,397	2,736	-12.4

CANINE VIRAL DIAGNOSTICS

Virus Name	Test Performed	Number 7/09-6/10	Number Positive (%)	Number 7/08-6/09	% Change
CDV	FA	172*	35(20.3)	255	-32.5
CDV	PCR	216*	54(25.0)	186	16.1
CCV	FA	14	1(7.1)	11	27.3
CPV	FA/SNAP/PCR	92	22(23.9)	102	-9.8
CHV	VI	12	5(41.7)	4	200.0
CHV	FA/PCR	23	6(26.1)	21	9.5
ICH	PCR	24	10(41.7)	10	140.0
Influenza	PCR	43	4(9.3)	19	126.3
Mycoplasma	PCR	55	21(38.2)	30	83.3
TOTALS		651	--	638	2.0

*62 are raccoons or other exotics/wildlife, 19(30.6%) positive.

CANINE VIRAL SEROLOGY

Virus Name	Test Performed	Number 7/09-6/10	Number 7/08-6/09	% Change
CDV	SN	6,991	7,423	-5.8
CDV IgG/IgM	IFA	314	262	19.8
CHV	SN	93	151	-38.4
CPV	HI	6,658	7,355	-9.5
Influenza	HI	31	57	-45.6
TOTALS		14,087	15,248	-7.6

RABIES TESTING

Species	Number 7/09-6/10	Number Positive	Number 7/08-6/09
Bat	88	10	64
Bovine/Llama/Caprine/Ovine	25	0	16
Canine	91	0	84
Coyote/Fox	31	2	30
Deer/Elk	6	1	1
Equine/Burro	37	2	12
Feline	79	0	85
Lynx/Mt Lion	32	1	21
Bear	10	0	2
Rabbit/Rodent/Unknown	8	0	3
Raccoon	15	0	26
Skunk	44	22	44
TOTALS	466	38	388

AVIAN DIAGNOSTICS

The table below indicates the number of different tests done by the Avian Diseases Section for the last two fiscal years and the last column indicates the percent change of fiscal year 09/10 compared to fiscal year 08/09. The middle column indicates the number (and percent) of positive tests. Necropsy is also listed in Pathology.

Agent Name	Test Performed	Number 7/09-6/10	Number Positive (%)	Number 7/08-6/10	% Change
Influenza	AGID/HI	1,208	NA	1,064	13.5
Influenza	PCR	1,523	NA	3,303	-53.9
Any	VI	30	0(0.0)	2	14.0
Infectious Bronchitis	ELISA	40	31(77.5)	NA	NA
West Nile	PCR	9	2(22.2)	19	-52.6
APMV-1	PCR	9	0(0.0)	6	50.0
Chlamydia	PCR	20	4(20.0)	15	33.3
Mycoplasma	PCR	24	15(62.5)	24	0.0
Mycoplasma	Serology	24	5(20.8)	4	500.0
Pullorum/ Typhoid	Serology	2,762	0(0.0)	2,072	33.3
Salmonella Mortality/Envir- omental	Culture	364	NA	385	-5.5
Newcastle Disease	Serology	33	33(100.0)	NA	NA
Any	Necropsy	97	NA	93	4.3
TOTALS		6,143		6,987	-12.1

BSL3 TESTING

Below are tests performed in the BSL3 section, usually in conjunction with testing through the National Animal Health Laboratory Network (NAHLN) overseen by the United States Department of Agriculture or with the Laboratory Response Network overseen by the Center for Disease Control. The last column indicates the percent change of test numbers of FY 09/10 compared to FY 08/09.

Agent Name	Test Performed	Number 7/09-6/10	Number Positive	Number 7/08-6/09	% Change
Classical Swine Fever	PCR	607	0(0.0)	36	1586.1
H1N1 Influenza	PCR	17	2(11.8) ^a	NA	NA
Q Fever	PCR	92	0(0.0)	383	-76.0
Piroplasmosis (<i>B. caballi</i>; <i>T. equi</i>)	cELISA	495	0(0.0)	NA	NA
Vesicular Stomatitis	Complement fixation	5,445	0(0.0)	32	16,915.6
<i>Francisella tularensis</i>	PCR	19	6(31.6) ^b	NA	NA
<i>Yersinia pestis</i>	PCR	19	0(0.0)	NA	NA
<i>Bacillus anthracis</i>	PCR	1	0(0.0)	NA	NA
<i>Brucella sp.</i>	PCR	3	0(0.0)	NA	NA
Pseudorabies	ELISA	3	0(0.0)	NA	NA
TOTAL		6,701	--	451	1385.8

^aBoth feline

^b5 beavers, 1 prairie dog

PARASITOLOGY

This table indicates the number of different tests done for the last two fiscal years. The last column indicates the percent change of fiscal year 09/10 compared to fiscal year 08/09.

Test	Number 7/09-6/10	% of Total	Number 7/08-6/09	% Change
Trich - Culture Food Animal	1,086	15.9	1,451	-33.6
Trich - PCR Food Animal	301	4.4	407	-35.2
Trich - Culture Small Animal	45	<1	42	-7.1
Trich - PCR Small Animal	105	1.5	61	72.1
<i>Neospora</i> Serology	467	6.8	404	15.6
<i>Toxoplasma</i> Serology	180	2.6	88	104.5
Knott's Test	10	<1	10	0
Heartworm Serology	415	6.1	342	21.3
<i>Ehrlichia/Lyme/ Anaplasma</i> Panel	613	9.0	345	77.7
Parasite ID	26	<1	41	-57.7
Fecal Exam	2,082	27.6	2,769	-32.4
<i>Giardia</i> ELISA/IFA	617	9.0	423	45.9
<i>Cryptosporidium</i> AF/IFA	718	10.5	431	66.6
Baermann	120	1.8	183	-52.5
Fluke exam	2	<1	45	-2150
Miscellaneous	41	3.4	49	-19.5
Soil Analysis (includes feed, water, sediment)	7	<1	228	-96.9
TOTAL	6,835	100.0	7,319	-7.1

PARASITOLOGY

The following tables indicate the results of fecal examinations for the listed host group. Results are given as the number of samples positive over the number of fecal specimens examined with the percentages in parentheses.

COMPANION ANIMAL/EXOTICS FECAL EXAMINATIONS

Species	Ascarids	Hookworms	Whipworms	Coccidia	Lungworms / <i>Strongyloides</i>	Other
Canine (includes wild species)	7/530 (1.3)	10/530 (1.7)	1/530 (0.2)	19/530 (3.5)	0/12 (0.0)	2/530 (0.4)
Feline (includes wild species)	3/145 (2.1)	0/145 (0.0)	0/145 (0.0)	1/145 (0.7)	0/8 (0.0)	1/145 (0.7)
Reptiles/Zoo	- ^a	-	-	0/7 (0.0)	0/1 (0.0)	0/7 (0.0)
Avian (wild & domestic)	0/14 (0.0)	-	-	4/14 (28.6)	-	1/14 (7.1)

^adash = not applicable

FOOD & FIBER ANIMALS/EQUINE FECAL EXAMINATIONS

Species	Ascarids	Coccidia	Strongyles	<i>Nematodirus</i>	<i>Trichuris</i>	Tapeworms	Other	Lungworms
Bovine	- ^a	78/180 (43.3)	72/180 (40.0)	3/180 (1.7)	5/180 (2.7)	4/180 (2.2)	5/180 (2.7)	-
Ovine / Caprine	-	89/103 (86.4)	45/103 (43.7)	39/103 (37.9)	19/103 (18.5)	10/103 (9.7)	4/103 (3.9)	0/2 (0.0)
Camelids	-	138/269 (51.3)	57/269 (21.9)	84/269 (31.2)	23/269 (8.6)	3/169 (1.8)	35/269 (13.0)	-
Cervids/ Wildlife/Zoo	-	63/101 (62.4)	66/101 (65.3)	4/101 (3.9)	6/101 (5.9)	0/101 (0.0)	5/101 (4.9)	2/98 (2.0)
Equine	3/340 (0.9)	0/312 (0.0)	101/340 (29.7)	-	-	0/340 (0.0)	0/340 (0.0)	-

^adash = not applicable

PARASITOLOGY

The following table indicates the results of fecal tests for *Cryptosporidium* and *Giardia* using various methods.

Species	<i>Giardia</i> (Fecal Float)	<i>Giardia</i> (Fecal Ag)	<i>Giardia</i> (IFA)	<i>Cryptosporidium</i> (Acid Fast)	<i>Cryptosporidium</i> (IFA)
Canine (includes wild species)	40/530 (7.5)	17/93 (18.3)	58/260 (22.3)	1/47 (2.1)	39/260 (15.0)
Feline (includes wild species)	2/145 (1.4)	0/1 (0.0)	16/127 (12.6)	-	13/127 (10.2)
Bovine/Caprine/Ovine	9/283 (3.2)	-	1/7 (14.3)	56/144 (38.9)	0/7 (0.0)
Camelids	1/269 (0.4)	-	0/11 (0.0)	0/1 (0.0)	0/11 (0.0)
Equine	0/312 (0.0)	-	1/2 (50.0)	0/1 (0.0)	1/2 (50.0)
Reptiles/Zoo/Wildlife	0/108 (0.0)	-	6/110 (5.5)	-	2/110 (1.8)

^adash = not applicable

The following table indicates the results for serology, molecular diagnostics and other tests for the listed host group. Results are given as the number of positive tests over the number of tests performed with the percentages in parentheses.

Species	Trich Culture	Trich PCR ^a	Neospora	Knotts Test	Heartworm	<i>Ehrlichia</i> / <i>Lyme</i> / <i>Anaplasma</i>	<i>Toxoplasma</i>
Bovine	2/1084 (0.2)	5/292 (1.8)	26/85 (30.6)	- ^b	-	-	-
Canine	1/7 (14.2)	0/2 (0.0)	94/212 (20.8)	3/10 (30.0)	1/335 (0.3)	8/487 (1.7)	-
Feline	8/39 (20.5)	0/7 (0.0)	-	-	0/37 (0.0)	-	-
Avian/Zoo	-	-	10/41 (24.3)	-	0/41 (0.0)	-	6/67 (9.0)

^aTrich PCR to detect *T. foetus* only; other non-*T. foetus* trichomonads may have been present

^bdash = not applicable

CHEMISTRY/TOXICOLOGY

The top table indicates the number of tests for nutrients or elements performed for the last two fiscal years. The last column of the top table indicates the percent change of fiscal year 09/10 compared to fiscal year 08/09. The bottom table indicates the results of testing for copper for the given species and tissue sample.

Nutrient	Number 7/09-6/10	%	Number 7/08-6/09	% Change
Copper	1,925	36.5	1,894	1.6
Zinc	624	11.8	462	35.1
Iron	348	6.6	388	-10.3
Selenium + GSH.Px	550	10.4	752	-26.9
Molybdenum	106	2.0	54	96.3
Vitamin A	347	6.6	611	-43.2
Vitamin E	552	10.5	835	-33.9
Macro elements (Ca,Mg,Mn,K, Na,P,Cl)	756	14.3	589	28.4
Special Request	65	1.2	217	-70.0
TOTAL	5,273	100.0	5,802	-9.1

COPPER

Species	Tissue	TOTAL	Results
Bovine	Serum	144	80 < 0.6ppm (deficient)
Bovine	Liver	125	10 < 40ppm deficient 0 > 600ppm toxic
Canine	Liver	1,023	71 > 1,500ppm (toxic)

There were 63/260 (24%) canine liver iron > 2000ppm

CHEMISTRY/TOXICOLOGY

This table lists the number of tests for toxicants for the last two fiscal years. The last column of the table indicates the percent change of fiscal year 09/10 compared to fiscal year 08/09.

Toxicant	Number 7/09-6/10	%	Number 7/08-6/09	% Change
Calculi	134	15.3	149	-10.1
Bromide	143	16.4	127	12.6
Cadmium	2	0.2	29	-93.1
Cholinesterase	29	3.3	8	262.5
Cobalt	13	1.5	5	160.0
Cyanide	3	0.3	3	0.0
Nitrate/Nitrite	93	10.6	150	-38.0
Strychnine	6	0.7	10	-40.0
Sulfate/Sulfur	291	33.3	30	870.0
Arsenic	14	1.6	59	-76.3
Lead	116	13.3	171	-32.2
Mercury	28	3.2	43	-34.9
Alpha- Mannosidase or Swainsonine	0	0.0	8	-100.0
Anticoagulant Screen	2	0.2	12	-83.3
Other	0	0.0	1	-100.0
TOTAL	874	100.0	805	8.6

There was 1 positive Strychnine from 6 samples.

There were 6 cases of lead toxicity.

SPECIAL SEROLOGY

The top table indicates the number of tests performed for the listed species for the last two fiscal years. The percent change of fiscal year 09/10 compared to fiscal year 08/09 is given in parentheses. Toxo stands for Toxoplasmosis and RMSF stands for Rocky Mountain Spotted Fever. The bottom table indicates the number of positive results over the total number of tests done, with the percent in parentheses.

Species	Toxo IgG/M 7/09-6/10	Toxo IgG/M 7/08-6/09 (%change)	Toxo CSF IgG/M 7/09-6/10	Toxo CSF Ig G/M 7/08-6/09 (% change)	RMSF IgG 7/09-/10	RMSF IgG 7/08-6/09 (%change)
Canine	2,507	1,916(30.8)	56	73(-23.3)	29	36(-19.4)
Feline	3,800	4,337(-12.4)	11	13(-15.4)	NA	NA
Llama/ Other/Unk	1	7(-85.7)	0	0	0	0
TOTAL	6,308	6,260(0.8)	67	86(-22.1)	29	36(-19.4)

Species	Positive Toxo IgG	Positive Toxo IgM	Positive Toxo CSF IgM	Positive RMSF IgG
Canine	168/2,507 (6.7)	51/2,507 (2.0)	2/56 (3.5)	1/29 (3.4)
Feline	538(3,800) (14.2)	144/3,800 (3.8)	2/11 (18.2)	NA
Llama/Other/ Unknown	0/1 (0.0)	0/1 (0.0)	0/0 (0.0)	0
TOTAL	706/6,308 (11.2)	195/6,260 (3.1)	4/67 (6.0)	1/29 (3.4)

The table below indicates the number of PCR tests done in the Special Serology section for the last two fiscal years. The number of positive results and the percentages in parentheses is given in the third column. The last column indicates the change in the number of tests from fiscal year 09/10 compared to fiscal year 08/09.

Test	Number 7/09-6/10	Number Positive (%)	Number 7/08-6/09	% Change
PCR Bartonella	145	7(4.8)	113	28.3
PCR Fever Panel	50	NA	49	2.0
PCR Cryptosporidia	34	1(2.9)	45	-24.4
PCR <i>M. haemocanis</i> / <i>M. haematoparvum</i>	98	2(2.0)	117	-16.2
PCR <i>M. haemofelis</i> / <i>M. haemominutum</i>	356	42(11.8)	366	-2.7
PCR <i>Neospora caninum</i>	34	0(0.0)	43	-20.9
PCR <i>Toxoplasma gondii</i>	161	NA	83	94.0
PCR Ehrlichia/ Anaplasma/Neorickettsia	118	3(2.5)	134	-11.9
PCR <i>Rickettsia</i> sp.	53	NA	50	6.0
<i>E. canis</i> IFA	36	6(16.7)	47	-23.4
TOTAL	1,085	--	1,047	3.6

CLINICAL PATHOLOGY

The Clinical Pathology Service is directed by the Veterinary Teaching Hospital, but samples from non-veterinary teaching hospital patients are processed through the Diagnostic Laboratory. The table indicates the number of tests performed for the given species for non-veterinary teaching hospital cases only. Fiscal year 09/10 is compared to fiscal year 08/09 and the percent change is given in parentheses.

Species	CBC 7/09-6/10	CBC 7/08-6/09 (%change)	Chemistry Panel 7/09-6/10	Chemistry Panel 7/08-6/09 (%change)	Fluid & Cytology 7/09-6/10	Fluid & Cytology ^a 7/08-6/09 (%change)	Other 7/09-6/10	Other 7/08-6/09 (%change)
Canine	898	1,251 (-28.2)	488	946 (-48.4)	2,973	2,472 (20.3)	688	680 (1.2)
Feline	297	268 (10.8)	170	192 (-11.5)	716	571 (25.4)	259	272 (-4.8)
Equine	477	403 (18.4)	464	400 (16.0)	114	131 (-13.0)	53	67 (-20.9)
Bovine	55	37 (48.6)	79	51 (54.9)	5	2 (150.0)	5	9 (-44.4)
Other	142	393 (-63.9)	128	399 (-67.9)	41	36 (13.9)	75	183 (-59.0)
Avian/ Reptile	36	67 (-46.3)	30	48 (-37.5)	6	5 (20.0)	0	2 (-100.0)
TOTAL	1,905	2,419 (-21.2)	1,359	2,036 (-33.3)	3,855	3,217 (19.8)	1,080	1,213 (-11.0)

^aThere were 849 additional site cytologies in FY09/10 compared to 676 in 08/09.

- There were 1,755 submissions of tissue for PCR to detect lymphoid malignancies (compared to 1,648 in FY08/09), and 1,310 submissions for flow cytometry (compared to 930 in FY08/09).

ENDOCRINOLOGY

This table indicates the number of tests performed for the listed species for the last two fiscal years. The percent change from fiscal year 09/10 compared to fiscal year 08/09 is given in parentheses. TDM stands for therapeutic drug monitoring.

Species	Pituitary Adrenal Axis	Pituitary Thyroid Axis	Insulin	Total 7/09-6/10	Total 7/08-6/09 (% change)	TDM 7/09-6/10	TDM 7/08-6/09 (% change)
Equine	179	46	107	332	369(-10.0)	3	(100.0)
Canine	762	1,393	16	2,171	1,862(16.6)	200	213(-6.1)
Feline	9	445	1	455	441(3.2)	6	14(-57.1)
Other	5	13	3	21	149(-85.9)	2	1(100.0)
TOTAL	955	1,897	127	2,979	2,821(5.6)	211	228(-7.5)

ROCKY FORD

Agent Name	Test Performed	Number 7/09-6/10	Number Positive	% Positive	Number 7/08-6/09	% Change
BLV	AGID	3	1	33.3	179	-98.3
BVD	FA	145	27	18.6	98	48.0
BVD PCR pools	PCR	1,316	47	3.6	1,872	-29.7
BVD Samples Pooled	PCR	51,375		NA	73,078	-30.3
BVD*	C-ELISA	3,493	148	4.2	7,089	-50.7
IBR	FA	145	27	18.6	86	68.6
BT	AGID	1	0	0.0	8	-87.5
Rota	ELISA	33	7	21.2	11	200.0
Corona	FA	0	0	0.0	12	-100.0
BRSV	FA	16	1	6.3	27	-40.7
<i>B. abortus</i>	Card Test	35	0	0.0	99	-64.6
<i>M. paratuberculosis</i>	ELISA	5	2	40.0	106	-95.3
Trichomonas**	Culture	370	3	0.8	413	-10.4
Trichomonas	PCR	4,533	60	1.3	2,798	62.0
Trichomonas pooled	PCR	2,196	46	2.1	3,181	-31.0
Trichomonas control program	PCR	9,261	52	0.6	12,899	-28.2
PRV	LAT	5	0	0.0	21	-76.2
PPV	FA	0	0	0.0	0	0.0
PRRS	ELISA	3	0	0.0	35	-91.4
CAE	AGID or	124	6	4.8	140	-11.4
OPP	ELISA AGID	8	6	75.0	1,968	-99.6
EIA	AGID	8,707	0	0.0	7,777	12.0
EIA	ELISA	503	0	0.0	550	-8.5
West Nile	ELISA	14	4	28.6	17	-17.6
<i>B. canis</i>	RSAT	28	1	3.6	20	40.0
CPV	Fecal ELISA	9	0	0.0	12	-25.0
FELV	ELISA	0	0	0.0	0	0.0
FIV	ELISA	1	0	0.0	1	0.0
TOTAL		82,329			112,497	-26.8

*1,858 tests were the result of a positive pool; from those positive pools 109 individuals were found positive.

**No culture positives were confirmed by PCR.

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WESTERN SLOPE

Test Performed	Number 7/09-6/10	Number Positive	% Positive	Number 5/08-6/09	% Change
Aerobic culture	624	NA	NA	622	0.3
Anaerobic culture	71	NA	NA	62	14.5
Milk culture	118	NA	NA	26	353.8
Antibiotic susceptibility	389	NA	NA	361	7.8
Fungal culture	44	NA	NA	43	2.3
Campylobacter culture	52	0	0.0	34	52.9
Mycoplasma culture	3	0	0.0	21	-85.7
Bovis ELISA	10,603	1,011 positive 214 indeterminate	9.5 positive 2.0 indeterminate	8,197	29.4
<i>B. abortus</i>	47	0	0.0	102	-53.9
<i>M. paratuberculosis</i>	1	0	0.0	19	-94.7
EIA (Coggins)	2,095	0	0.0	2,256	-7.1
CAE AGID	16	2	12.5	45	-64.4
West Nile ELISA	8	3	37.5	2	300.0
BVD cELISA & PCR	256	27	10.5	285	-10.2
Bluetongue AGID	2	0	0.0	17	-88.2
FA BVD	70	22	31.4	129	-45.7
FA BRSV	16	3	18.8	17	-5.9
FA IBR	64	36	56.3	90	-28.9
FA P13	2	0	0.0	25	-92.0
FA Corona	12	4	33.3	15	-20.0
FA EHV	4	2	50.0	9	-55.6
Trichomonas Culture/PCR	3,010	6	0.2	3,382	-11.0
Fecal exam	40	NA	NA	39	2.6
Neospora Serology	26	2	7.7	8	225.0
Chemistry	149	NA	NA	178	-16.3
Necropsy	92*	NA	NA	127	-27.6
Histopathology	780	NA	NA	849	-8.1
Uterine Biopsy	16	NA	NA	16	0.0
Cytology	115	NA	NA	104	10.6
TOTAL	18,725	NA	NA	17,080	9.6

*56.5% Food Animal, 9.9% Equine, 19.5% Wildlife, 14.1% Pets.

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