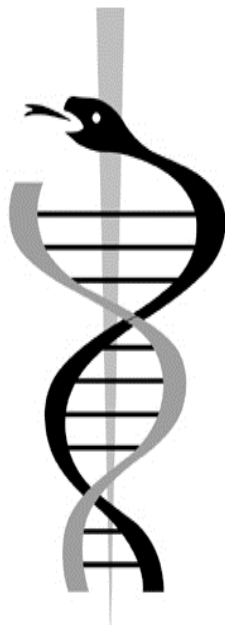


**COLORADO STATE UNIVERSITY
VETERINARY DIAGNOSTIC LABORATORIES**

ANNUAL REPORT 2012



**Colorado State University
Diagnostic Laboratories
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Fort Collins, CO 80523
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email: dlab@colostate.edu
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**Arkansas Valley
Animal Disease Diagnostic Laboratory
27847 Road 21/Rocky Ford, CO 81067
Phone 719/254-6382 Fax 719/254-6055
Western Slope
Animal Diagnostic Laboratory
425-29 Road/Grand Junction, CO 81501
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 2012. The testing and disease statistics are by the fiscal year July 1, 2011 to June 30, 2012. 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 Office Staff	Barbara Powers, DVM/ PhD/DACVP	Director
	Connie Heighes	Business Officer/Asst to Director
	Carrie Schmer	Computer Services (CRG)
	Tracy Bazler	Computer Services (CRG)
	Nancy Ault	Office Manager/Receiving
	Elaine Andersen	Word Processing/Special Projects
	Emma Pribbeno	Sample Receiving
	Mary Lindburg	Word Processing/Admin Asst
	Michelle McHugh	Client Services
	Pete Grabel	Client Services
	Adrienne Espinoza	Client Services
	Lisa Monzingo	Asst. Business Manager
	Hillary Morrell	Accounting/Grant Manager
	Katie Leber	Client Services/Phone
	Kim Speaker	Sample Receiving
	Tina Kane	Office Manager/Client Services
	Deirdre Triplett	Client Services/Phone
	Jan Roberts	Word Processing
	Kaye Williams	Word Processing
	Avian Diagnostics and BSL3 Operations	Kristy Pabilonia, DVM/PhD/DACVM
Christina Weller		Microbiologist
Sarah Millonig		Avian Program Assistant
Jeruesha Nichols		Avian Program Assistant
Kyran Cadmus		Research Associate
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
	Arianne Morris	Research Associate
	Hana Van Campen, DVM/PhD/DACVM	Virology Section Head
Microbiology	Doreene Hyatt, PhD	Bacteriology Section Head
	Denise Bolte	Microbiologist
	Monica Estay	Microbiologist
	Cindy Hirota	Microbiologist
	Mike Russell	Microbiologist
	David Hicks	Microbiologist
	Anita Schiebel	Microbiologist
	Deb Beard	Microbiologist
	Christina Gates	Microbiologist
	Kathi Wilson	Microbiologist/TSE Testing
	Leah Powers	Lab Assistant/TSE Testing
	Jeanette Bishop	Research Associate
	Lora Ballweber, DVM/MS/DACVM	Section Head
	Brandy Nagamine	Lab Technician
	Joe McDowell	Lab Support
Molecular Diagnostics	Barbara Powers, DVM/PhD/DACVP	Pathologist/Director
	Gary Mason, DVM/PhD/DACVP	Pathologist/Section Head
	EJ Ehrhart, DVM/PhD/DACVP	Pathologist
	Sushan Han, DVM/PhD/DACVP	Pathologist
	Chad Frank, DVM/MS/DACVP	Pathologist
Parasitology		
Pathology		
	Charlie Davis	Case Coordinator

DIAGNOSTIC LABORATORY PERSONNEL, cont.

	Pat Cole, 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
Histology	Linda Vap, DVM/DACVP	Lab Coordinator
	Todd Bass	Lab Supervisor
	Grant Evans	Lab Technician
	Matthew Garber	Lab Technician
Quality Assurance	Bruce Cummings	Research Associate
	Dwayne Hamar, PhD	QA Manager
	Christina Weller	QA Asst Manager
ROCKY FORD		
Office Staff	Gene Niles, 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	Don Kitchen, DVM/PhD/DACVP	Director
	Kim Hannafious	Microbiologist
	Antonia Hestia	Admin Asst
	Fred Crippen	General Laborer
	Chris King	Admin Asst

AWARDS, HONORS AND SERVICE MILESTONES, 2011

5 Years of Service

Sarah Millonig
Deirdre Triplett
Matt Garber
Grant Evans
Kaye Williams
Toonie Hista
Laura Mendenhall
Jennifer Boden
Tawfik Aboellail

15 Years of Service

Jeanette Bishop
Lisa Wolfe
Gary Mason

10 Years of Service

Todd Bass
Kristy Pabilonia

20 Years of Service

Nancy Ault

30 Years of Service

Bruce Cummings
Lisa Monzingo

40 Years of Service

Terry Spraker

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. Tim Hackett/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. Chris Orton/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. Sunny Geiser-Novotny/USDA/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
Ms. Kellee Mitchell	CO Livestock Association	Greeley, CO 80534

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
Shannon McLeland, DVM
Seeung Yoo, DVM
Deanna Dailey, DVM

Craig Miller, DVM
Dan Regan, DVM
Elijah Edmundson, DVM
Travis Meuten, DVM

Microbiology

Ashley Malmlov, DVM

Comparative Lab Animal Medicine

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

NOTE: Try to get a new one

EXTERNAL ADVISORY COMMITTEE MEMBERS



Back Row: Ron Kollers, Del Miles, Lance Perryman (CVMBS Dean), Tolani Francisco, Elisabeth Lawaczeck, Jan Carroll, Leesa McCue, and Gregg Dean (MIP Dept Head).

Front Row: Marv Hamann, Ed Hansen, Don Kitchen (Western Slope Director), Keith Roehr, Larry Mackey, Pete Hellyer (CVMBS Assoc Dean), Steve Wheeler, Norm Brown, Joan Bowen, Mike Gotchey, Chris Orton and Dean Hendrickson (VTH Director).

Absent: Terry Fankhauser/Mike Miller/Bob Davies/Kenny Rogers

DIAGNOSTIC LABORATORY FACULTY TEACHING CONTRIBUTIONS, 2012

ANEQ476	Feedlot Management/K. Pabilonia, H. VanCampen
ERH510	Cancer Biology/E. Ehrhart
IU193	Introduction to Parasites/L. Ballweber
MIP192	Microbiology First-Year Seminar/D. Hyatt
MIP334	Food Microbiology/D. Hyatt, T. Spraker
MIP335	Food Microbiology Laboratory/D. Hyatt
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
MIP555	Principles and Mechanisms of Disease/P. Cole, 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, G. Mason, P. Cole, T. Spraker, T. Aboellail, C. Duncan, Sushan Han, Chad Frank
MIP786B	Practicum--Surgical Pathology/E. Ehrhart, G. Mason, P. Cole, T. Spraker, T. Aboellail, C. Duncan, C. Frank, S. Han
MIP786C	Practicum for Clinical Pathology Residents/C. Olver, P. Avery, A. Bohn
MIP792AC	Bioanalytical and Microscopy Seminar/E. Ehrhart, G. Mason, P. Cole, T. Spraker, T. Aboellail, C. Duncan, S. Han, C. Frank
MIP792D	Seminar Anatomic Pathology/E. Ehrhart, G. Mason, P. Cole, T. Spraker, T. Aboellail, C. Duncan, S.Han, C. Frank
MIP796V	General Pathology Group Study/T. Aboellail
MIP796V	Surgical Pathology/B. Powers
MIP615	Ophthalmological Histopathology/E. Ehrhart
VM601	Perspectives in Veterinary Medicine/T. Spraker, K. Pabilonia
VM603	Veterinary Science: Research and Methods/K. Pabilonia
VM610	Foundations Veterinary Medicine/S. Han
VM623	Veterinary Nutrition and Metabolism/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
VM714	Veterinary Preventive Medicine/C. Duncan
VM722	Veterinary Pharmacology/L. Ballweber
VM724	Bioanalytic Pathology/P. Cole
VM741	Biology of Disease II/P. Cole, G. Mason, T. Spraker, E. Ehrhart, T. Aboellail, C. Duncan
VM742	Biology of Disease III/G. Mason, P. Cole, 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
VM786A	Junior Practicum—Diagnostic Veterinary Parasitology/L. Ballweber
VM786A	Junior Practicum—Emerging and Exotic Diseases of Animals/K. Pabilonia, C. Duncan

TEACHING CONTRIBUTIONS, cont.

VM786B Senior Practicum--Clinical Service Necropsy Block/E. Ehrhart, D. Hyatt, G. Mason, P. Cole, T. Spraker, H. Van Campen, T. Aboellail, Sushan Han, Chad Frank

VM796V Dermatopathology/P. Cole

VS626 Infertility and Genital Diseases/H. Van Campen

VS642 Ophthalmology/E. Ehrhart

VS718 Cancer Biology Clinical Practicum/E. Ehrhart

**SCIENTIFIC PRESENTATIONS, PROCEEDINGS, POSTERS AND ABSTRACTS
BY FACULTY, STUDENTS AND STAFF MEMBERS, 2012**

Frank C, Pabilonia K: Avian encephalomyelitis virus outbreak in pullets from a commercial layer flock. Poster presentation, American Association of Veterinary Laboratory Diagnosticians (2012): Greensboro, NC.

Ramos-Vara J, **Frank C**, Dusold D, Miller M: Immunohistochemical expression of melanocytic antigen PNL2, Melan A, S100 and PGP 9.5 in equine melanocytic neoplasms. Poster presentation, American College of Veterinary Pathologists Meeting (2012): Seattle, WA.

Bumgardner SA, Kajikawa A, Zhang L, **Frank CB**, LaVoy AS, Dean GA: Effects of NOD2 on the immunogenicity of *Lactobacillus* as a mucosal vaccine vector. Poster presentation, Keystone Symposium (2012): Ottawa, Canada.

AC Samaniego, CJ Ronholdt, **EJ Ehrhart**, AS Turner, HB Seim, S Bogdanshy, BL Atkinson. Evaluation of Processed Human Amnion Membrane to Prevent Post-operative Adhesions in an Ovine Laminectomy. Poster. Feb 4-11, 2012 ORS Annual Meeting, San Francisco CA.

H Yoshikawa, **EJ Ehrhart**, JB Charles, SM LaRue. Oral Squamous Cell Carcinoma: A Clinical Trial Evaluating Molecular Markers and Treatment with Stereotactic Radiation Therapy. Poster. Cell and Molecular Biology Research Day Symposium. Fort Collins CO, Feb 24, 2012.

C Halsey, **EJ Ehrhart**, D Worley, JB Charles, D Gustafson. The Use of Novel Lymphatic Endothelial Cell-specific Immunohistochemical Markers to Differentiate Angiosarcomas in dogs. Poster. Cell and Molecular Biology Research Day Symposium. Fort Collins CO, Feb 24, 2012.

KL Swancutt, **EJ Ehrhart**, JT Curtis, SSD Rao, RN Kolesnick, SM LaRue. Endothelial Cell Apoptosis as a Component of Tumor Control Mechanisms Induced by Stereotactic Therapy. Poster. Cell and Molecular Biology Research Day Symposium. Fort Collins CO, Feb 24, 2012.

JN Hatzel, PM McCue, **EJ Ehrhart**, JB Charles, RA Ferris. Immunohistochemical localization of Early Pregnancy Factor (HSP10) in equine embryos. Presentation. July 26-29, 2012 The 8th International Symposium on Equine Embryo Transfer, Vancouver, British Columbia, Canada.

H Yoshikawa, **EJ Ehrhart**, JB Charles, S LaRue. Predicting Clinical Outcome of Feline Squamous Cell Carcinoma after Stereotactic Radiation Therapy. Poster and presentation. Veterinary Cancer Society Annual Meeting. Las Vegas, NV Oct 18-21, 2012.

P Avery, R Elmslie, **EJ Ehrhart**, S Correa, A Avery. CD4 Tcell Lymphoma in dogs is a Discrete Neoplasia with Uniform Clinical Characteristics. Presentation. ACVP, Annual meeting. Seattle WA, Dec 1-5, 2012.

Water Quality and Oil Drilling, Dwayne Hamar, at AAVLD/AAVLD meeting October 18, 2012.

2012 Scotch M, Pabilonia KL, Anderson T, Baroch J, Kohler D, Deliberto TJ, Espy M, Pritt B, Black K, Mei C and Seville MT. Phylogeography of avian and human influenza in the Southwest United States. International Society for Computational Biology Rocky Mountain Bioinformatics Conference. Aspen, CO.

2012 Cadmus KJ, Miller RS, Farnsworth M, Slota KE, Millonig SM, Forde-Folle K, Bowen RA and Pabilonia KL. Density and distribution of backyard poultry

flocks in Metropolitan Denver, Colorado. Conference of Research Workers in Animal Disease. Chicago, IL.

2012 Scotch M, Pabilonia KL, Anderson T, Baroch J, Kohler D, Deliberto TJ, Espy M, Pritt B and Seville MT. Phylogeography of influenza A viruses in human and avian species in the Southwest United States. International Conference on Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases. New Orleans, LA.

2012 Pabilonia KL, Setiyaningsih S, Muljono AT, Widyastuti MDW, Aminah, Arief RA, Weller CB, Wibawan IWT and Bowen RA. Avian influenza virus in domestic ducks in West Java, Indonesia. 8th International Symposium on Avian Influenza. London, England.

2012 Pabilonia KL. Global impacts of avian influenza viruses. National Institute for Animal Agriculture Annual Conference. Denver, CO.

October 2012 Raising a healthy poultry flock, Colorado State University Extension Seminar Series, Fort Collins, CO.

June 2012 Raising healthy poultry flocks, Colorado State University Extension Small Scale Poultry Workshop, Pueblo, CO.

Ballweber LR. Canine peritoneal larval cestodiasis and other aberrant tapeworm infections. AVMA Annual Convention, August 4-7, 2012. San Diego.

Ballweber LR. Echinococcus: A re-emerging threat? AVMA Annual Convention, August 4-7, 2012. San Diego.

Ballweber LR. Endoparasitism, anthelmintic resistance, and the return of the fecal flotation in the management of equine small strongyles. Colorado Veterinary Medical Association. October 4-7, 2012. Loveland.

Continuing education presentations without proceedings:

Ballweber LR. Latest on raccoon roundworm; *Baylisascaris procyonis* research. 37th Annual Zoonoses Conference. Aurora, April, 2012.

Abstracts:

Clarke LL, **Ballweber LR**, Lappin MR. A summary of blood-borne agents found in samples collected in Kumasi, Ghana. CVMBS Research Symposium, Fort Collins, January, 2012.

Clarke L, **Ballweber LR**, Allen K, Little S, Lappin MR. Prevalence of select vector borne disease agents in owned dogs of Ghana. American College of Veterinary Internal Medicine Forum. New Orleans, May-June, 2012.

Engelken TJ, Kimber MJ, Day TA, Ubben S, O'Connor A, **Ballweber L**, Wong C, Evans P, Dewell R. A survey to evaluate the level of anthelmintic resistance of gastrointestinal strongyles in Iowa cow/calf operations. American Association of Bovine Practitioners. Montreal, Quebec, Canada, September, 2012.

KP Poster presentations:

2012 Frank CB and Pabilonia KL. Avian encephalomyelitis virus outbreak in pullets from a commercial layer flock. American Association of Veterinary Laboratory Diagnosticians Annual Conference. Greensboro, NC.

2012 Cadmus KJ, Weller CB, Mason GL, Powers BE and Pabilonia KL. Detection of zoonotic agents at a veterinary diagnostic laboratory. Laboratory Response Network National Meeting. Denver, CO.

2012 Minor C, Kersh G, Gelatt T, Kondas AV, Pabilonia KL, Weller CB, Dickerson B and Duncan, CG. *Coxiella burnetii* in Northern Fur Seals and Steller Sea Lions of the North Pacific Ocean and Bering Sea. Merit - National Institutes of Health National Veterinary Scholars Program Symposium. Loveland, CO.

2012 Vet-LRN Cooperative Laboratory Agreement Salmonella Project Research Group (including Pabilonia, KL). Salmonella prevalence in pets. Food and Drug Administration Foods Program Science and Research Conference. Silver Spring, MD.

2012 Hodge TM, Cadmus KJ, Bolte D, Russell MM, Van Metre DC and Pabilonia KL. Detection of *Salmonella* spp. in the environment at agricultural fairs in association with poultry and waterfowl exhibitions. College of Veterinary Medicine and Biomedical Sciences Research Day. Fort Collins, CO.

Van Campen, H., Prevention and Control of BVD in Beef Herds. Nov. 1, 2012. Southern Colorado Livestock Association, Walsenberg, CO.

Van Campen, H. and G. Mason. Care and Feeding of Your Diagnostic Lab. Oct. 6, 2012. CVMA Annual Meeting, Loveland, CO.

Van Campen, H., Prevention and Control of BVD in Beef Herds. July 15, 2012. Southern Colorado Livestock Association, Aguilar, CO.

Van Campen, H., Rabies & Shelters. April 7, 2012. ASPCA/Colorado State University Shelter Medicine Conference, Fort Collins, CO.

Van Campen, H. Who done it? Mysteries in microbiology. April 4, 2012. The Sirloin Club, Platteville, CO.

Van Campen, H. Current issues with BVD. Jan. 8, 2012. 73rd Annual Conference for Veterinarians, Fort Collins, CO.

2012 B.A. Burgess, D.S. Bolte, D.R. Hyatt, D.C. Van Metre, P.S. Morley. Serotype reactivity of commercial immunoassays for *Salmonella enterica* identification in experimentally-inoculated equine fecal samples. Proceedings of the 93rd Annual Meeting of the Conference of Research Workers in Animal Diseases, Chicago, 2012. Presentation #25.

2012 A. Miller, M. Bunning, M. Stone, D.R. Hyatt, J. ZumBrunnen. Assessment of airborne microorganisms in a craft brewery. International Food Technologists 2012 Annual Meeting and Food Expo. Las Vegas, NV. June 25-28, 2012. Poster.

1. Duncan, C, Kersh, G, Spraker T, Fielitz K, Fitzpatrick KA, Massung RF, Gelatt T. *Coxiella burnetii* in Northern Fur Seal (*Callorhinus ursinus*) placentas from St. Paul Island, Alaska. Oral presentation, Alaska Marine Science Symposium, Anchorage, AK, 2012

2. Dirsmith K*, VanDalen K, Fry T, Charles B, VerCauteren K, Duncan C. Leptospirosis in Fox Squirrels of Larimer County, Colorado. Poster presentation, The Wildlife Society Annual Meeting, Portland OR, Nov 2012
3. Minor C*, Kersh GJ, Gelatt T, Kondas AV, Pabilonia K, Weller C, Dickerson BR, Duncan C. *Coxiella burnetii* in Northern Fur Seals and Steller Sea Lions of Alaska. Poster Presentation; Meril Veterinary Scholars Symposium , 2012
4. Myers E*, Ehrhart EJ, Charles B, Spraker T, Duncan C. Apoptosis in Normal and *Coxiella burnetii* Infected Placentas from Northern Fur Seals (*Callorhinus ursinus*). Poster presentation, CSU, CVMBBS Research Day 2012.
5. Duncan C et al. *Coxiella burnetii* in Pinnipeds of Alaska. Oral presentation, Colorado Veterinary Medical Association Annual Conference, Loveland CO, 2012
6. Duncan C et al. Wildlife as Sentinels for Domestic Animal and Human Health; Effects of Volcanic Smog on Free-Ranging Hawaiian Sheep. Oral presentation, Colorado Veterinary Medical Association Annual Conference, Loveland CO, 2012
7. Duncan C et al. *Coxiella burnetii* in Northern Fur Seals: Cause for Concern or Have Red Herrings Infiltrated the Pacific Herring Niche? Oral presentation, Animal Determinants of Emerging Diseases (ADED) North America rounds presentation, 2012
8. Kane NG, Johnston MJ, Han S, Speer B, Duncan C. Correlation Between Clinical and Post-mortem Diagnoses of Psittacine Patients. Association of Avian Veterinarians Annual Conference, 2012
9. Dirsmith K*, Weller C, Pabilonia K, Spraker T, Duncan C. Retrospective Review of Northern Fur Seal (*Callorhinus ursinus*) Placentas for *Coxiella burnetii* on St. Paul Island. Poster presentation, CSU Undergraduate Research & Creativity Symposium 2012
10. Dirsmith K*, Weller C, Pabilonia K, Spraker T, Duncan C. Retrospective Review of Northern Fur Seal (*Callorhinus ursinus*) Placentas for *Coxiella burnetii* on St. Paul Island. Poster presentation, CSU CVMBBS Research Day 2012
11. KD Walton*, K Kirkley, R Tjalkens, C Duncan, R Curtis, LV Kendall. Characterization of Discrete Integumentary Lesions in *Ikk β* Knock-Out Mice. Poster presentation, AALAS 2012
12. Kondas AV, Duncan C, Savage K, Williams M, Dickerson B, Fitzpatrick KA, Guerrero JL, Spraker T, Kerch *Coxiella burnetii* strains detected in environmental and Northern Fur Seal placental samples from St. Paul Island, Alaska GJ. Oral presentation, American Society for Rickettsiology. 2012
13. Schuler BA*, Faford J, Powers JG, Spraker TR, Duncan CG. Potential effects of volcanic emissions (VOG) on respiratory health of free-ranging Mouflon Sheep. Poster presentation, CSU, CVMBBS Research day 2012 (Winner of outstanding poster award)
14. Kane N*, Ehrhart EJ, Charles B, Duncan C. Expression of Cyclooxygenase-2 and Matrix Metalloproteinase-2 and -9 in Canine Atherosclerosis. Oral presentation, CSU, CVMBBS Research day 2012
15. Prager K*, Greig D, Alt D, Duncan C, Galloway R, Hornsby R, Soper J, Zuerner R, Gulland F, Lloyd-Smith J. California sea lions – both an accidental and a reservoir host for *Leptospira interrogans* serovar Pomona? Oral presentation, GRC 2012

SCIENTIFIC PUBLICATIONS BY FACULTY MEMBERS AND STUDENTS, 2012

- Chavez DJ, LeVan IK, Miller MW, **Ballweber LR**. 2012. *Baylisascaris procyonis* in raccoons (*Procyon lotor*) from eastern Colorado, an area of undefined prevalence. *Vet Parasitol.* 185:330-334. Epub ahead of print: doi:10.1016/j.vetpar.2011.11.002. (Corresponding author)
- Ballweber LR**, Baeten LA. 2012. Use of macrocyclic lactones in cattle in the USA. *Current Pharmaceutical Biotechnology.* 13:1061-1069. Epub ahead of print 31 October 2011 (Invited).
- Scorza AV, **Ballweber LR**, Tangtrongsup S, Panuska C, Lappin MR. 2012. Comparisons of mammalian *Giardia duodenalis* assemblages based on the β -giardin, glutamate dehydrogenase and triose phosphate isomerase genes. *Vet Parasitol.* 189:182-188; doi: 10.1016/j.vetpar.2012.04.032. Epub 2012 May 8.
- Ballweber LR**, Dailey D, Landolt G. 2012. *Klossiella equi* infection in an immunosuppressed horse: evidence of long-term infection. *Case Reports in Veterinary Medicine*, Article ID 230398, 4 pages, 2012. doi:10.1155/2012/230398.
- Corbin, EE, Cavanaugh RP, Fick, JL, McAbee, KP, Powers B. Foreign body reaction to a retained surgical sponge (gossypiboma) mimicking an implant associated sarcoma in a dog after a tibial plateau leveling osteotomy. *Vet Comp Orthop Traumatol* 26; 2012.
- Frankot JL, Behrend EN, Sebestyén P, Powers BE. Adrenocortical carcinoma in a dog with incomplete excision managed long-term with metastasectomy alone. *J Am Anim Hosp Assoc.* 48; 417-413, 2012.
- Duncan C, Krafsur G, Podell B, Baeten LA, Levan I, Charles B, **Ehrhart EJ**, Leptospirosis and Tularemia in Raccoons (*Procyon lotor*) of Larimer County, Colorado. *Zoonoses Public Health.* 2012 Feb;59(1):29-34. Epub 2011 Apr 20.
- Shoeneman JK, **Ehrhart EJ**, Eickhoff JC, Charles JB, Powers BE, Thamm DH. Expression and Function of Survivin in Canine Osteosarcoma. *Cancer Res.* 2012 Jan 1;72(1):249-59. Epub 2011 Nov 8.
- Brandt LE, Bohn AA, Charles JB, **Ehrhart EJ**. Localization of Canine, Feline, and Mouse Renal Membrane Proteins. *Vet Pathol.* 2012 Jul;49(4):693-703. Epub 2011 Jun 28.
- Schaffer PA, Charles JB, Tzipory L, Ficociello JE, Marvel SJ, Barrera J, Spraker TR, **Ehrhart EJ**, Neurolymphomatosis in a Dog With B-Cell Lymphoma. *Vet Pathol.* 2012 Sept; 49:771-774. Epub 2011 Sep 7.
- Modiano JF, Bellgrau D, Cutter GR, Lana SE, Ehrhart NP, **Ehrhart EJ**, Wilke VL, Charles JB, Munson S, Scott MC, Pozniak J, Carlson CS, Schaack J, Duke RC. Inflammation, Apoptosis, and Necrosis Induced by Neoadjuvant Fas Ligand Gene Therapy Improves Survival of Dogs With Spontaneous Bone Cancer. *Mol Ther.* 2012 Dec;20(12):2234-2243. Epub 2012 Jul 31.
- Venable RO, Worley DR, Gustafson DL, Hansen RJ, **Ehrhart EJ** 3rd, Cai S, Cohen MS, Forrest ML. Effects of intratumoral administration of a hyaluronan-cisplatin nanoconjugate to five dogs with soft tissue sarcomas. *Am J Vet Res.* 2012 Dec;73(12):1969-76. doi: 10.2460/ajvr.73.12.1969.
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Van Campen, H. and J. Bishop. 2012. Canine hepatitis in a sun bear. CSU VDL 17(1): 10.

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Schaffer, P.A., J.M. Sonis, J.S. Rodriguez, S. Han. Mar 2012. Case report: Ileo-jejunal strangulation in the uterine mesometrium of a non-pregnant mare. Clinical Theriogenology. Vol 4: 55-60 pp.

PRESENTATIONS/OUTREACH TO THE PUBLIC, 2012

ON-GOING FUNDED CONTRACTS AND GRANTS, 2011/Update to 2012

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.

Ehrhart E. (Co-Invest). Development of a Model of Equine Herpesvirus-1. Biotechnology Research and Development Corporation. 10/1/09-09/30/12. \$401,867.

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.

Eckstein T, 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. 9/01/09-8/30/12. \$200,000.

Franklin A, 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.

Mason G. (Co-Invest). Nursing Calf Respiratory Disease Producer Survey. Univ of GA. 2011. \$10,000.

Pabilonia K. and Van Campen H. (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 Prevention and Control Program. USDA/APHIS. 4/10-03/11. \$295,000.

Pabilonia K. (PI). Notifiable Avian Influenza Prevention and Control Program. USDA/APHIS. 4/11-03/12. \$265,000.

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

Pabilonia K. (PI). AI Surveillance for the Early Detection of AI. USDA/APHIS. 9/30/10-9/28/11. \$25,000.

Pabilonia K. (PI). National Avian Influenza Tissue Archive and Genotyping. USDA/APHIS. 5/01/11-4/30/12. \$119,353.

Pabilonia K. (PI) and Hyatt D. Evaluation of Salmonella Shedding From Symptomatic Dogs. FDA. 9/16/11-9/15/12. \$50,000.

Pabilonia K. (PI). AI Virus Isolation and Sequencing Agreement. USDA/APHIS through WSU 9/29/11-9/28/12. \$26,420.

Pabilonia K. Leptospirosis Testing: A Cooperative Agreement. USDA/APHIS. 8/15/11-8/14/12. \$55,000.

Powers B. (PI). National Animal Health Laboratory Network—Core Animal Diagnostic Laboratory. Co-Invest **K. Pabilonia, D. Hyatt** and **D. Hamar**. USDA. 09/01/10-08/30/11. \$298,000.

Powers B. (PI). National Animal Health Laboratory Network—Core Animal Diagnostic Laboratory. Co-Invest **K. Pabilonia, D. Hyatt** and **D. Hamar**. USDA. 09/01/11-08/30/12. \$182,000.

Powers B. (PI). Classical Swine Fever Surveillance. USDA. 09/01/10-03/31/11. \$26,642.

Powers B. (PI). Classical Swine Fever Surveillance. USDA-APHIS. 7/01/11-3/31/12. \$45,540.

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

Powers B. (PI). LIMS Integration Agreement. USDA-APHIS. 2/3/10-2/2/11. \$38,508.

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. \$56,970.

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. 9/24/10-9/23/11. \$31,680.

Spraker T. (PI). Chronic Wasting Disease: Characterization of Disease Transmission. USDA/APHIS. 9/1/11-8/31/12. \$198,000.

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. 08/31/09-12/31/13. \$638,700.

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.

Spraker T. (PI). Technical Assistance for Veterinary Pathology and Diagnostic Service for NPS Wildlife Species. National Park Service. 09/01/11-12/13/13. \$138,000.

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, 2011

Aboellail T, Ballweber L, Duncan C, Hamar D, Hyatt D, Han S, 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, Han S, 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, Han S, Frank C, 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. Chair, 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. Co-Chair, Bacteriology Steering Committee. American Association of Veterinary Laboratory Diagnosticians

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

Hyatt D. Member, Antimicrobial Susceptibility Subcommittee. American Association of Veterinary Laboratory Diagnosticians

Hyatt D. Auditor. Accreditation Committee. American Assoc 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. Coordinator, Colorado Avian Disease Surveillance Program

Pabilonia K. Coordinator, Colorado State Agency for the National Poultry Improvement Plan

Pabilonia K. Member. Conference Planning Committee. Colorado Veterinary Medical 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. Auditor. Accreditation Committee. American Association of Veterinary Laboratory Diagnosticians

Pabilonia K. Member, US-Indonesian Joint Council on Higher Education

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

Pabilonia K. Member, Colorado National Veterinary Stockpile Exercise

Pabilonia K. Member, Zoonosis Conference Planning Committee, CO Dept of Public Health and Environment

Pabilonia K. Member, AAVLD/USAHA Joint Special Committee on the National Animal Health Laboratory Network

Powers BE. Member, National Animal Health Information Technology Board, USDA

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, USDA/FDA/DHS

Powers BE. Member, Colorado Livestock Association

Powers BE. Co-Chair, AAVLD/USAHA Joint Special Committee on 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, Financial Advisory 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

- Race horse catastrophic bone failure
- 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

- MRSA investigations and documentation
- Canine liver disease and iron accumulation
- Multiple oncology projects with many VTH and extramural clinicians and students (PhD)

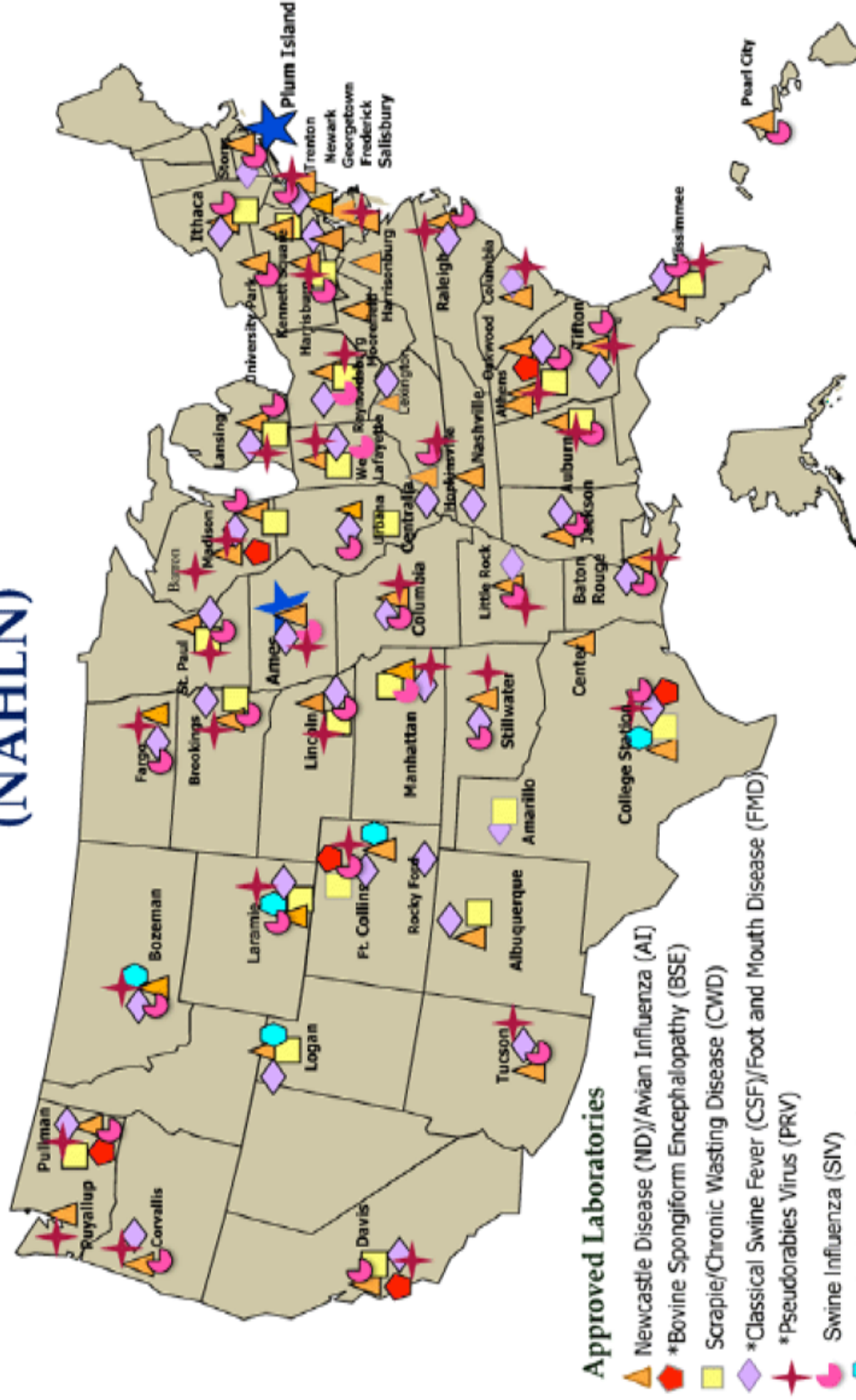
Wildlife and Epidemiology

- 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
- Patterns and causes of skin cancer in sea turtles
- Incidence of Baylisascaris in raccoons
- Zoonotic diseases in raccoons
- 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)

2012 PROFICIENCY TESTS COMPLETED

Disease	Test	Section	Administering Agency
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
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
Brucellosis	Card Test	Fort Collins Bacteriology	CO Dept. of Ag
Brucellosis	Card Test	Rocky Ford	CO Dept. of Ag
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
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
Mycobacterium avium. subsp. Paratuberculosis	Solid Media	Fort Collins Bacteriology	NVSL
<i>M. avium paraTB</i> (Johne's)	Direct PCR from feces	FC Bacteriology/Rocky Ford	NVSL
	ELISA	Fort Collins BSL3	NVSL
Piroplasmiasis	cELISA	Fort Collins BSL3	NVSL
<i>Salmonella</i> group D	Culture	Fort Collins Bacteriology	NVSL/NPIP
Scrapie	Immunohistochemistry	Fort Collins TSE	NVSL
Swine Influenza Virus H1N1	Real-Time RT-PCR	Fort Collins BSL3	NVSL
Vesicular Stomatitis Virus	Complement Fixation	Fort Collins BSL3	NVSL
Copper, Iron and Zinc (liver)	Flame Atomic Absorption Spectrophotometry	Chem/Tox	Vet LRN
<i>Salmonella</i> spp. (dog feces)	Culture	Bacteriology	Vet LRN

National Animal Health Laboratory Network (NAHLN)



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report

**COLORADO STATE UNIVERSITY
VETERINARY DIAGNOSTIC LABORATORY
2011-12 ACCESSION STATISTICS**

FORT COLLINS

	11-12	10-11	09-10	08-09	07-08	06-07	05-06
Accessions	89,176	86,202	108,938	100,624	111,123	131,750	209,952
Animals	NA	NA	158,759	151,372	161,213	152,965	266,791
Tests Performed	391,040	330,372	339,123	314,507	319,930	341,400	372,231

BY SECTION

	11-12	10-11	09-10	08-09	07-08	06-07	05-06
Administrative	7,634	7,386	45,903	44,838	46,148	41,006	40,889
Avian	6,911	6,140	6,234	5,067	6,935	5,497	4,275
Bacteriology	60,637	29,138	19,464	19,169	17,368	17,665	17,533
Bacti-Serology	Combined w/ bacteriology	Combined w/ bacteriology	6,527	10,591	10,671	11,965	15,514
BSL3	2,819	3,990	10,698	445			
Chemistry	4,863	4,919	8,515	7,984	7,849	8,038	10,564
Clinical Path	7,822	8,244	9,314	9,392	9,106	9,158	9,161
Endocrinology	2,948	2,680	3,218	2,843	2,762	2,742	2,769
Food Safety	Combined w/ bacteriology	Combined w/ bacteriology	1,246	2,284	2,699	4,016	4,585
Histology	165,130	155,159	85,900	76,570	75,210	76,159	10,800
M. Diagnostics	4,268	4,088	2,555	3,398	3,571	4,574	4,531
Necropsy	1,686	1,762	1,678	1,543	1,609	1,526	1,567
Pathology	33,414	32,001	37,527	35,746	38,149	41,441	35,206
Parasitology	8,050	8,435	6,524	7,876	7,289	5,132	6,852
Special Sero	8,052	9,026	14,441	13,989	14,853	14,852	13,904
TSE	32,259	20,192	33,976	25,078	30,440	50,106	135,206
Virology	44,547	37,212	4,286	4,328	5,140	6,762	14,288
Viro Serology	Combined w/ virology	Combined w/ virology	40,732	43,366	39,209	40,625	44,577

This represents a 3.5% increase in accessions and an 18.4% increase in the number of tests performed compared to the previous year. Bacteriology, Molecular Diagnostics, Avian, Pathology, TSE, Virology and Histology showed the largest increases while other areas stayed the same or decreased. The large increase in Bacteriology was primarily due to export testing.

ROCKY FORD

	11-12	10-11	09-10	08-09	07-08	06-07	05-06
Accessions	11,281	12,948	13,808	13,248	13,461	10,483	10,801
Animals	NA	NA	82,909	111,150	102,111	118,594	101,646
Tests Performed	170,404	107,971	92,219	122,581	112,542	125,328	108,970

BY SECTION

	11-12	10-11	09-10	08-09	07-08	06-07	05-06
Administrative	20,512	15,504	3,634	4,024	4,363	3,648	1,951
Bacteriology	8,334	3,213	1,731	1,483	1,438	1,461	1,788
Bacti-Serology	Combined w/ bacteriology	Combined w/ bacteriology	630	762	2,199	1,723	2,227
Chemistry	634	560	895	740	817	809	887
Clin Path	474	585	746	738	805	799	872
Endocrinology	185	146	242	251	346	336	285
Pathology	220	593	356	423	479	424	524
Parasitology	19,858	17,006	16,839	19,635	19,227	3,872	3,882
Virology	120,187	70,348	57,475	78,403	73,470	98,627	84,407
Viro-Serology	Combined w/ virology	Combined w/ virology	9,670	16,054	9,368	13,678	12,127

This represents a 12.9% decrease in number of accessions and a 57.8% increase in number of tests performed compared to the previous year. The increases were in Bacteriology, Chemistry, Parasitology and Virology. The large increase in virology was primarily due to export testing.

WESTERN SLOPE

	11-12	10-11	09-10	08-09	07-08	06-07	05-06
Accessions	2,847	3,195	3,608	3,528	3,799	3,479	2,728
Animals	NA	NA	20,770	16,879	16,366	16,395	15,208
Tests Performed	18,784	19,488	24,073	20,408	19,585	19,131	17,822

BY SECTION

	11-12	10-11	09-10	08-09	07-08	06-07	05-06
Administrative	2,619	1,981	3,736	2,147	1,523	1,91	777
Bacteriology	11,181	11,288	1,448	1,292	1,410	1,266	674
Bacti-Serology	Combined w/ bacteriology	Combined w/ bacteriology	11,458	8,765	9,119	9,446	9,322
Clinical Path	52	109	138	104	4	1	
M. Diagnostics	1	2	244	234			
Pathology	790	918	918	1,005	1,071	774	219
Parasitology	2,533	2,961	3,120	3,453	2,988	2,894	2,740
Virology	1,608	2,225	487	567	469	554	371
Viro-Serology	Combined w/ virology	Combined w/ virology	2,351	2,619	2,874	2,903	3,705

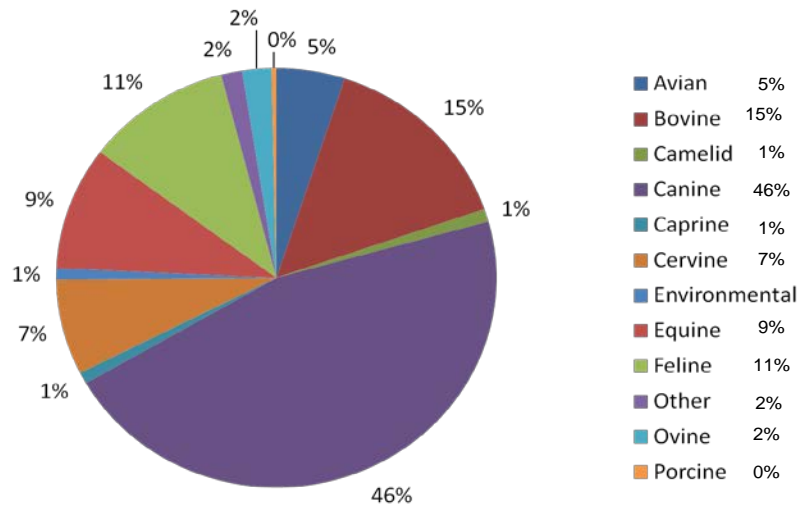
This represents a 10.9% decrease in accessions and a 3.6% decrease in number of tests performed compared to the previous year. Most areas showed a decrease.

ALL LABS

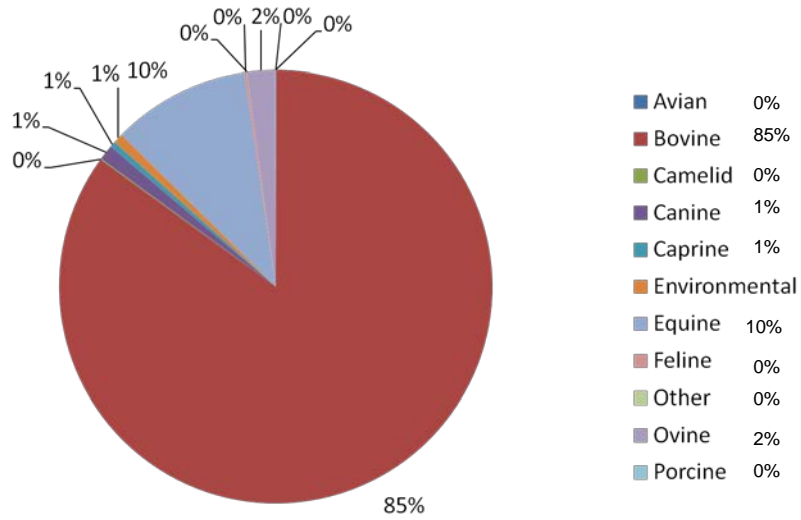
	11-12	10-11	09-10	08-09	07-08	06-07	05-06
Accessions	103,304	102,345	126,354	117,400	128,383	145,712	223,481
Animals	NA	NA	262,438	279,401	279,690	287,954	383,645
Tests Performed	580,228	457,831	455,415	457,976	452,057	485,769	499,023

This represents a 0.9% increase in accessions and a 26.7% increase in number of tests performed compared to the previous year.

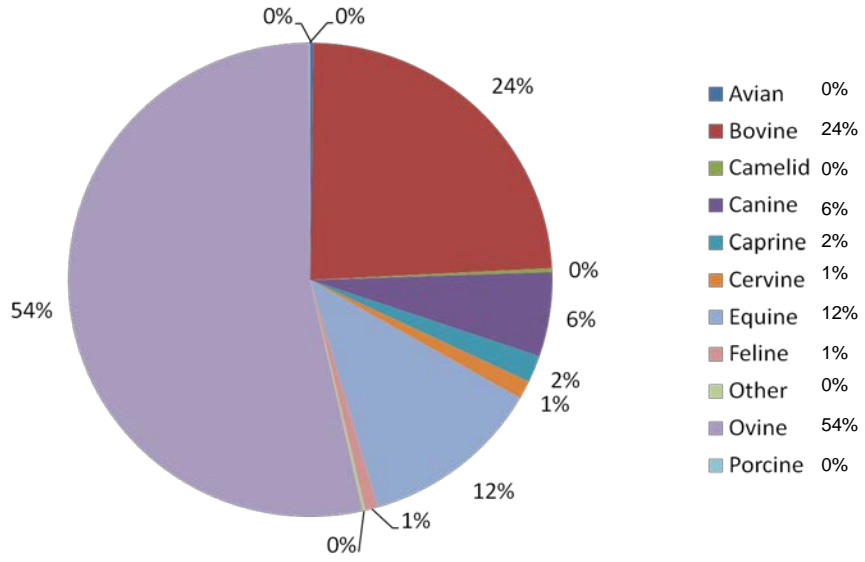
Fort Collins Species
7/1/2010 – 6/30/2011



Rocky Ford Species
7/1/2010 – 6/30/2011



**Western Slope Species
7/1/2010 – 6/30/2011**



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 11/12 compared to fiscal year 10/11. Cases from the VTH increased by 25 (2.9%), while cases from the state and region decreased by 101 (-11.2%).

NECROPSY

Species	VTH 7/11-6/12	State/Region 7/11-6/12	TOTAL 7/11-6/12	TOTAL 7/10-6/11	% Change
Bovine	78	75	153	136	12.5
Equine	81	48	129	173	-25.4
Porcine	2	5	7	9	-22.2
Ovine/Caprine	29	26	55	87	-36.8
OLA*/OSA*	27	42	69	41	68.3
Canine	443	369	812	808	0.5
Feline	148	84	232	233	-0.4
Avian	26	48	74	86	-14.0
Wildlife/ Exotics	54	101	155	189	-18.0
TOTAL	888	798	1,686	1,762	-4.3

*OLA = Other Large Animal

*OSA = Other Small Animal

TRANSMISSIBLE SPONGIFORM ENCEPHALOPATHY TESTING

Test	# Tests 7/11-6/12	# Cases 7/11-6/12	# Tests Positive(%)	Number 7/10-6/11	% Change
Captive Elk Surveillance	2,585	1,442	21(0.8)	2,268	14.0
CWD Surveillance+	2,287	1,345	161(7.0)	2,378	-3.8
CWD—ELISA CO & Others*	7,546	7,546	108(1.4)	7,728	-2.4
USDA TSE	11,772	6,176	0(0.0)	6,172	90.7
USDA BSE	8,069	8,069	0(0.0)	6,291	-28.3
TOTAL	32,259	24,578		24,837	29.9

*2,583 Colorado only

+Includes rectal biopsies

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 11/12 from fiscal year 10/11. The bottom table indicates the number of specific diagnoses or causative agents identified for abortions in fiscal year 11/12. The last column of the bottom table indicates the number and percentage of abortions with undetermined cause.

ABORTION SCREENS

Species	Number 7/11-6/12	%	Number 7/10-6/11	% Change
Bovine	96	71.6	45	113.3
Equine	13	9.7	1	92.3
Porcine	0	0.0	1	-100.0
Ovine	10	7.5	11	-9.1
Caprine	5	3.7	6	-16.7
Camelid	6	4.5	1	500.0
Other	4	3.0	10	-60.0
TOTAL	134	100.0	75	78.7

Species	Number Examined	Viral (%)	Bacterial (%)	Other (%)	Undeter- Mined(%)
Bovine					
Equine					
Porcine					
Ovine					
Caprine					
Camelid					
TOTAL					

^a9 with IBR, 9 with BVD (7 both IBR and BVD)

^bHigh ocular nitrates (3), congenital abnormalities (3)

^c1 Campylobacter

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 11/12 compared to fiscal year 10/11. 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 7/11-6/12	%	Number 7/10-6/11	% Change
Bovine	97	57.4	99	-2.0
Equine	6	3.6	11	-45.5
Porcine	3	1.8	3	0.0
Ovine/Caprine	5	3.0	7	-28.6
Canine	47	27.8	46	2.2
Feline	6	3.6	18	-66.7
Cervids	2	1.2	3	-33.3
Other	3	1.8	7	-57.1
TOTAL	169	100.0	194	-12.9

Species	Rota	Corona	E. coli	Salmonella	Clostridia	Cryptosporidia	Other	Undeter- mined
Bovine								
Equine								
Ovine/ Caprine								
Camelid								
Canine								
TOTAL								

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

^bStrongyles

^cCoccidia

^dParvovirus (10), Giardia (4), Hookworms/Whipworms (4)

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 11/12 compared to fiscal year 10/11. The VTH cases increased by 112 cases (9.0%) while the state/country cases increased by 148 cases (0.5%). The bottom table indicates the number and percentage of certain diagnoses given for both the VTH and state/country.

BIOPSY

SPECIES	VTH 7/11-6/12	State/Country 7/11-6/12	Total 7/11-6/12	Total 7/10-6/11	% Change
Canine	1,112	24,549	25,661	25,453	0.8
Feline	150	3,859	4,009	4,027	-0.4
Other/Exotics	19	352	371	314	18.2
Avian	4	50	54	45	20.0
Equine	61	568	629	638	-1.4
Bovine	1	198	199	180	10.6
Porcine	2	8	10	2	40.0
Ovine/Caprine	3	59	62	55	12.7
Camelid/Cervine	2	67	69	90	-23.3
TOTAL	1,354	29,710	31,064	30,804	0.8

*Of this total, 321 were 2nd opinion consultations from outside the Laboratory, and 195 were dermatology-specific cases.

Diagnosis	VTH (%)	State/Country (%)	TOTAL (%)
Benign Tumor	269(22.6)	8,838(32.7)	9,107(32.3)
Sarcoma	386(32.5)	8,281(30.7)	8,667(30.7)*
Carcinoma	188(15.8)	3,392(12.6)	3,580(12.7)
Skin Disease	124(10.4)	2,401(8.9)	2,525(9.0)
Liver Disease	89(7.5)	2,206(8.2)	2,295(8.1)
GI Disease	132(11.1)	1,886(7.0)	2,018(7.2)

*2,740 (9.7%) of these were mast cell tumors. There were 534 mast cell tumor profiles and 126 c-Kit mutation PCRs.

- There were 191 biopsies referred from the Rocky Ford Branch Laboratory in fiscal year 11/12 compared to 237 in fiscal year 10/11. These were mostly canine, feline or equine.
- New Tests: Histopathology—Exotic Clinical Consult

UTERINE BIOPSIES

The top table indicates the number of uterine biopsies for the last two fiscal years, and the percent change of fiscal year 11/12 compared to fiscal year 10/11. The bottom table indicates the distribution and percentages of the different grades given to the uterine biopsies.

Species	Number 7/11-6/12	%	Number 7/10-6/11	% Change
Equine	709	99.9	530	33.8
Other	1	0.1	1	0.0
TOTAL	710	100.0	531	33.7

Grade	Number	%
1A	193	27.2
1B	252	35.5
2A	110	15.5
2B	121	17.0
3A	25	3.5
3B	1	0.1
NA/Unknown	8	1.1

HISTOLOGY

The table below lists the number of slides, special stains and immunohistochemical (IHC) stains performed by the Histology Laboratory (not including Scrapie or CWD).

Procedure	Number 7/11-6/12	%	Number 7/10-6/11	% Change
H&E Slides/Biopsy & Necropsy	149,199	89.5	142,685	4.6
H&E Slides/Research	11,885	7.1	7,173	65.7
Special Stains	2,929	1.8	2,600	12.7
IHC Stains		% of IHC		
Actin	14	1.3	26	-46.2
BVD	25	2.2	34	-26.5
CD3/CD79a	440	39.4	469	-6.2
CD18	126	11.3	179	-29.6
c-Kit	61	5.5	44	38.6
Chromagranin	15	1.3	46	-67.4
Cytokeratin	93	8.3	127	-26.8
Desmin	61	5.5	63	-3.2
DOG-1	31	2.8	NA	NA
FIP	22	2.0	56	-60.7
Factor 8	34	3.0	46	-26.1
Leptospirosis	4	0.4	4	0.0
Melan A	45	4.0	61	-26.2
MUM-1	26	2.3	3	766.7
Neospora	6	0.5	18	-66.7
Synaptophysin	20	1.8	43	-53.5
Vimentin	87	7.8	113	-23.0
Other	7	0.6	13	-46.2
Subtotal IHC	1,117	100.0	1,345	-17.0
TOTAL	165,130		153,803	7.4

BACTERIOLOGY

This table lists the different cultures and selected other tests performed by the bacteriology or molecular diagnostics sections. The total number of tests performed in fiscal year 11/12 is compared to the total number of tests performed in fiscal year 10/11. The last column is the percent change between the fiscal years.

Test	Number 7/11-6/12	Number Positive %	Number 7/10-6/11	% Change
Aerobic Culture	5,218	NA	5,631	-7.3
Aerobic & Anaerobic Culture	1,574	NA	1,525	3.2
Fecal Culture	2,719	NA	2,371	14.7
Clostridial Fecal Culture	396	201(50.8)	246	61.0
PCR Clostridial Genotype	18	18(100.0)*	46	-60.9
Clostridial perfringens/ difficile Toxin	69	9(13.0)	97	-28.9
PCR <i>E. coli</i> multiplex	13	2(15.4)	11	18.2
Mycobacterial Culture/PCR	70	10(14.3)	86	-18.6
Blood Culture	71	NA	61	16.4
Campylobacter Culture	303	7(2.3)	371	-18.3
Mycoplasma Culture	212	42(19.8)	381	-44.4
CEM Culture	236	0(0.0)	235	0.4
Strept equi PCR	15	2(13.3)	NA	NA
Fungal Culture	389	155(39.8)	429	-9.3
PCR Leptospirosis	79	3(3.8)	126	-37.3
Antimicrobial Susceptibility	5,813	NA	5,457	6.5
Environmental Culture	1,022	31(3.0)	1,360	-24.9
Plate Counts	0	NA	38	-100.0
MRSA Culture	45	5(11.1)	13	246.2
Biolog Bacti ID	4	NA	35	-88.6
TOTAL	18,266	NA	18,519	-1.4

*11 type A, 5 type C, 2 type E

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 7/11-6/12	%
Bovine	695	67	744	202	29	0	1,737	16.5
Equine	875	144	1,497	43	0	46	2,605	24.8
Porcine	10	4	22	5	2	0	43	0.4
Ovine/ Caprine	88	21	81	16	5	1	212	2.0
Camelid	33	11	105	10	0	4	163	1.6
Canine	2,657	1,117	206	71	125	197	4,373	41.6
Feline	725	147	36	14	40	108	1,070	10.2
Avian	18	0	1	5	0	2	26	0.2
Cervine	9	5	11	15	0	0	40	0.4
Non-Animal	39	9	2	0	0	8	58	0.6
Other	69	49	14	15	11	23	181	1.7
TOTAL	5,218	1,574	2,719	396	212	389	10,508	100.0

The table below lists the serology tests performed in the bacteriology section with the number of tests performed in fiscal year 11/12 compared to the number of tests performed in fiscal year 10/11. 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 7/11-6/12	Positive (%)	Number 7/10-6/11	% Change
Mycobacterium paratuberculosis (ELISA)	23,853	Suspect-3(0.01) Low pos-76(0.3) Pos-8(0.03) Strong Pos-81(0.3)	2,897	723.4
M. paratuberculosis AGID	241	7(2.9)	159	51.6
Brucella abortus	167	0(0.0)	309	-45.9
Brucella canis	107	1(0.9)	84	27.4
Leptospirosis (5 serovars)	2,889x5=14,445 ^a	1108(7.7)	110x5=5,500	162.6
Lepto Bratislava	2,202	215(9.8)	169	1,203.0
Aspergillosis	100	3(3.0)	74	35.1
Blastomycosis	95	1(1.1)	70	35.7
Coccidiomycosis	148	19(12.8)	95	55.8
Histoplasmosis	92	0(0.0)	70	31.4
Cryptococcus	173	11(6.4)	180	-3.9
IgG Estimate	35	NA(-)	13	169.2
IgG Quantitation	296	NA(-)	262	13.0
IgA&IgM Quantitation	274	NA(-)	273	0.4
Protein Electrophoresis	137	NA(-)	80	71.3
Immunofixation	29	NA(-)	17	70.6
ANA Titer	28	1(3.6)	30	-6.7
TOTAL	42,422	--	10,282	312.6

^a 558 bovine, 7 equine, 201 canine, 0 camelids, 2 caprine and 5 cervids had titers $\geq 1:100$

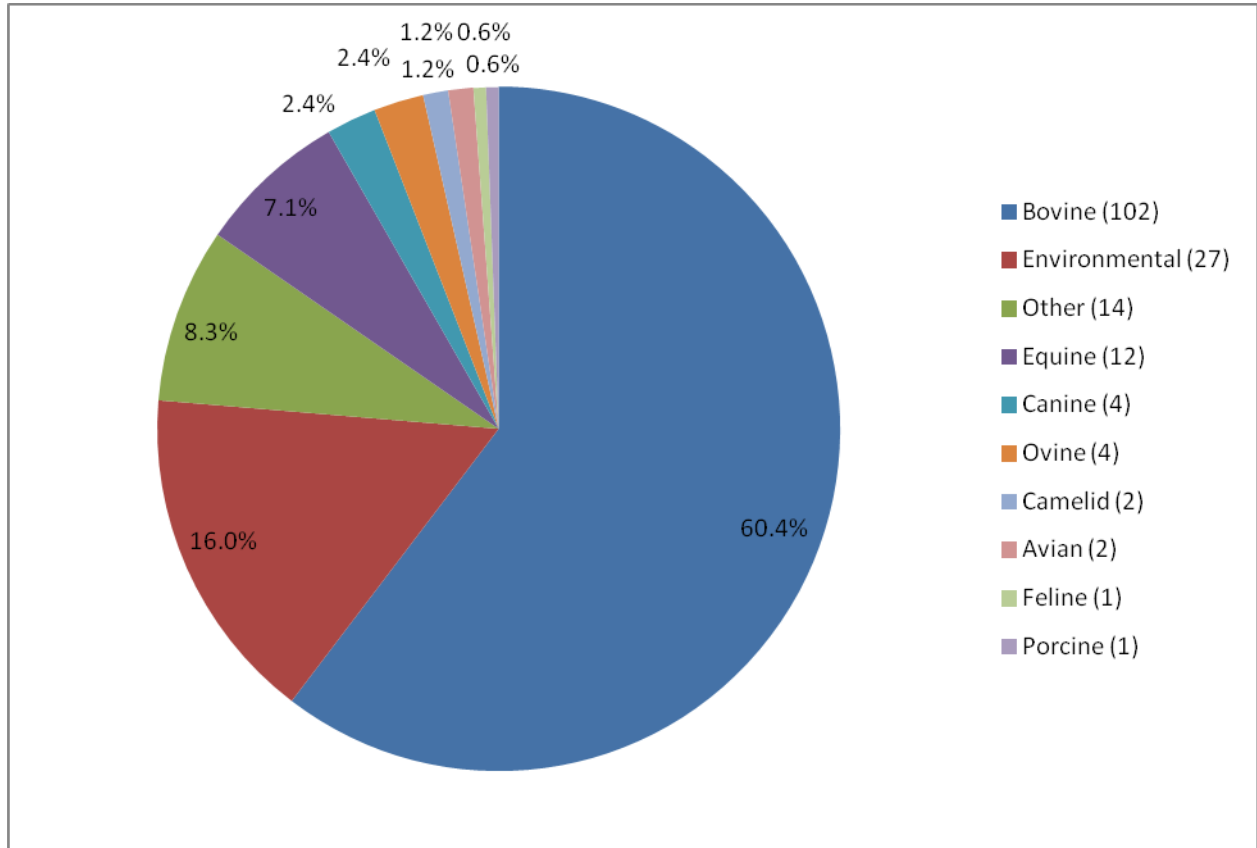
The table below lists the food safety diagnostic testing for the last two fiscal years and the percent change between the two fiscal years.

Test Performed	Number 7/11-6/12	Number 7/10-6/11	% Change
Milk Culture	9	44	-79.5
Mycoplasma screen	14*	20	-30.0
Milk Mycoplasma Culture/PCR	1	87	-98.9
Milk Culture Screen	596	346	72.3
Aerobic feed culture	135	0	100.0
TOTALS	755	497	51.9

*1 positive

- New Tests: PFGE (Pulse Field Gel Electrophoresis)
 Bovine Pregnancy Test
 Milk Bacteria ID/Mycoplasma Culture Composite
 Milk Contagious ID
 Milk Coliform Counts
 Milk Standard Plate Count
 Milk Laboratory Pasteurized Counts
 Milk Preliminary Incubation
 Milk Quality Test

Salmonella Isolations by Animal Species – 07/01/10-06/30/11



Lepto serology results for each of the 5 serotypes for serological samples submitted between July 1st 2010 and June 30th in 2011 and all of 2004 through 2008 for ALL animal species. The total number of samples tested (N) and the number of positive results (P) as defined as a titer greater than or equal to 1:100 as well as the highest titer reported during the year (High) is given below.

Year	N	<i>L. canicola</i>		<i>L. grippo.</i>		<i>L. hardjo</i>		<i>L. ictero.</i>		<i>L. pomona</i>	
		P	High	P	High	P	High	P	High	P	High
2004	467	49	800	76	819,200	33	800	102	3200	87	102,400
2005	858	152	1600	135	51,200	117	1600	165	3200	123	12,800
2006	264	51	800	34	6400	21	1600	26	800	38	6400
2007	597	90	1600	105	6400	42	3200	89	3200	98	6400
2008	766	107	6400	157	6400	116	3200	149	6400	128	6400
2009/2010	798	137	3200	118	6400	99	6400	60	3200	126	6400
2010/2011	1105	218	6400	144	6400	143	6400	119	6400	149	6400

From July 1st 2010 to June 30th in 2011 a total of 167 tests for *L. bratastava* were conducted and 5 were positive with the highest titer being 1:800.

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.

A total of 126 *Leptospira* PCR tests were performed between the dates of 07/01/10 – 06/30/11. The PCR was positive for DNA in 10 samples, suspect in 2 samples and 114 samples had no *Leptospira* DNA detected.

EQUINE VIRAL DIAGNOSTICS

Virus Name	Test Performed	Number 7/11-6/12	Number Positive(%)	Number 7/10-6/11	% Change
EHV-1	VI	3	0(0.0)	12	-75.0
EHV-1	FA	4	0(0.0)	4	0.0
EHV-1/-4	PCR	226	3(1.3)	271	-16.6
Influenza	PCR	28	3(10.7)	27	3.7
West Nile	PCR	1	0(0.0)	0	100.0
EVA	PCR	37	0(0.0)	17	117.6
Rotavirus	ELISA	10	1(10.0)	12	-16.7
TOTALS		309	--	343	-9.9

EQUINE VIRAL SEROLOGY

Virus Name	Test Performed	Number 7/11-6/12	Number 7/10-6/11	% Change
EHV-1	SN	129	241	-46.5
EHV-4,EHV-3	SN	74	170	-56.5
EVA	SN	457 ^a	1,703	-73.2
Influenza/A1&A2	HI	36	136	-73.5
EIA	AGID or ELISA	4,681 ^b	4,684	-0.1
VSV	SN(2 strains)	28	76	-63.2
West Nile	IgM ELISA	57 ^c	89	-35.9
TOTALS		5,462	7,099	-23.1

^a10/457(2.2%) positive

^bZero positive

^c3/57(5.3%) positive

PORCINE VIRAL DIAGNOSTICS

Virus Name	Test Performed	Number 7/11-6/12	Number Positive (%)	Number 7/10-6/11	% Change
Influenza	PCR	1	0(0.0)	0	100.0
Mycoplasma	PCR	1	1(100.0)	0	100.0
Rotavirus	ELISA	7	2(28.6)	4	75.0
PRV/PRRS	VI	0	0(0.0)	0	0.0
PRRS	PCR	5	1(20.0)	4	25.0
TGE	FA	3	1(33.3)	1	20.0
TOTALS		17	--	9	88.9

OVINE/CAPRINE/LLAMA/CERVID VIRAL DIAGNOSTICS

Virus Name	Test Performed	Number 7/11-6/12	Number Positive(%)	Number 7/10-6/11	% Change
BVDV	VI	2	0(0.0)	6	-66.7
BVDV	FA/IHC	62	4(7.4)	112	-44.6
BVDV	PCR	282	1(0.4)	620	-54.5
BVD	SN	227	NA	341	-33.4
BRSV	SN	200	NA	119	68.1
BRSV	FA/PCR	5	0(0.0)	4	25.0
IBR	FA/PCR	4	0(0.0)	5	-20.0
IBR	SN	159	NA	172	-7.6
PI3	FA	0	0(0.0)	2	-100.0
PI3	SN	151	NA	249	-39.4
BT	cELISA/AGID	286	93(32.5)	186	53.8
BT	PCR	17	3(17.6)	21	-19.0
EHD	AGID	193	95(49.2)	152	27.0
EHD	PCR	6	0(0.0)	1	500.0
EHV	FA/PCR	12	0(0.0)	3	300.0
Coronavirus	FA	4	0(0.0)	7	-42.9
Rotavirus	ELISA	23	0(0.0)	22	4.5
OPP	AGID	171	8(4.7)	28	510.7
OPP	PCR	38	1(2.6)	82	-53.7
CAE	ELISA/AGID	349	21(6.0)	339	2.9
CAE	PCR	140	30(21.4)	76	84.2
Caprine Herpes	PCR	0	0(0.0)	2	-100.0
Chlamydia	PCR	38	6(15.8)	50	-24.0
Mycoplasma	PCR	5	2(40.0)	14	-64.3
OHV-2	PCR	10	4(40.0)	5	100.0
West Nile	PCR	2	0(0.0)	4	-50.0
VSV	SN(2 strains)	89	NA	NA	NA
TOTAL		2,475	--	2,622	-5.6

FELINE VIRAL DIAGNOSTICS

Virus Name	Test Performed	Number 7/11-6/12	Number Positive(%)	Number 7/10-6/11	% Change
FHV-1	PCR	131	13(9.9)	201	-34.8
FHV-1	VI	126	0(0.0)	27	366.7
Calicivirus	PCR	44	6(13.6)	67	-34.3
FPV	SNAP/PCR	17	7(41.2)	24	-29.2
FeLV	ELISA	73	2(2.7)	85	-14.1
FIV	ELISA	73	1(1.4)	84	-13.1
FIV	PCR	21	6(28.6)	12	75.0
Chlamydia	PCR	103	15(14.6)	151	-31.8
Mycoplasma	PCR	67	21(31.3)	65	3.1
Corona/FIP	PCR	39	10(25.6)	36	8.3
TOTALS		694	--	752	-7.7

FELINE VIRAL SEROLOGY

Virus Name	Test Performed	Number 7/11-6/12	Number 7/10-6/11	% Change
FIP	IFA	93	121	-23.1
FCV	SN	493	590	-16.4
FHV	SN	584	606	-3.6
FPV	HI	1,687	1,415	19.2
TOTALS		2,857	2,732	4.6

CANINE VIRAL DIAGNOSTICS

Virus Name	Test Performed	Number 7/11-6/12	Number Positive (%)	Number 7/10-6/11	% Change
CDV	FA	99*		94	5.3
CDV	PCR	899*	315(35.0)	173	185.4
CCV	FA	49	1(2.0)	50	-2.0
CPV	FA/SNAP/PCR	82	2(2.4)	71	15.5
CHV	VI	0	0(0.0)	0	0.0
CHV	FA/PCR	33	2(6.1)	21	57.1
ICH	PCR	11	2(18.2)	10	10.0
Influenza	PCR	10	0(0.0)	21	-52.4
Mycoplasma	PCR	42	17(40.5)	51	-17.6
TOTALS		1,225	--	491	149.5

*59 are raccoons or other exotics/wildlife, 7(22.6%) positive.

CANINE VIRAL SEROLOGY

Virus Name	Test Performed	Number 7/11-6/12	Number 7/10-6/11	% Change
CDV	SN	9,615	8,538	12.6
CDV IgG/IgM	IFA	272	269	1.1
CHV	SN	62	59	5.1
CPV	HI	9,138	8,072	13.2
Influenza	HI	12	38	-68.4
TOTALS		19,099	16,976	12.5

- New Tests: Feline Herpesvirus/Chlamydia/Mycoplasma—PCR
Feline Infectious Peritonitis (FIP) FA
Canine Influenza Virus--HI

RABIES TESTING

Species	Number 7/11-6/12	Number Positive	Number 7/10-6/11
Bat	95	22	59
Bovine/Llama/Caprine/Ovine*	21	2	27
Canine	128	0	137
Coyote/Fox	23	2	9
Deer/Elk	4	0	2
Equine/Burro	22	0	25
Feline	95	1	100
Lynx/Mt Lion	4	0	3
Bear	3	0	8
Rabbit/Rodent/Unknown	19	1	12
Raccoon	20	0	22
Skunk	45	23	22
TOTALS	479	51	426

*Includes 1 bison

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 11/12 compared to fiscal year 10/11. The middle column indicates the number (and percent) of positive tests. Necropsy is also listed in Pathology.

Agent Name	Test Performed	Number 7/11-6/12	Number Positive (%)	Number 7/10-6/11	% Change
Influenza	AGID/HI	1,868	NA	1,235	51.3
Influenza	PCR	1,252	NA	1,444	-13.3
Any	VI	688	NA	258	166.7
Infectious Bronchitis	ELISA	0	0(0.0)	26	-100.0
West Nile	PCR	6	0(0.0)	5	20.0
APMV-1	PCR	11	1(9.1)	5	120.0
Chlamydia	PCR	33	0(0.0)	12	175.0
Mycoplasma (MG/MS)	PCR	60	25(41.7)	68	-11.8
Mycoplasma	Serology	2	1(50.0)	34	-94.1
Pullorum/ Typhoid	Serology	2,318	NA	2,481	-6.6
Salmonella Mortality/Envir- omental	Culture	598	NA	483	23.8
Newcastle Disease	Serology or PCR	1	0(0.0)	1	0.0
Any	Necropsy	74	NA	88	-15.9
TOTALS		6,911		6,140	12.6

- New Tests: Newcastle Disease ELISA

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 11/12 compared to FY 10/11.

Agent Name	Test Performed	Number 7/11-6/12	Number Positive	Number 7/10-6/11	% Change
Classical Swine Fever	PCR	1,048	0(0.0)	396	164.6
H1N1 Influenza	PCR	4	0(0.0)	6	-33.3
Q Fever	PCR	34	0(0.0)	214	84.1
Piroplasmosis (<i>B. caballi</i>; <i>T. equi</i>)	cELISA	1,609	0(0.0)	2,597	-38.0
Vesicular Stomatitis	Complement fixation	2	0(0.0)	10	-80.0
<i>Francisella tularensis</i>	PCR	8	1(12.5)	17	-52.9
<i>Yersinia pestis</i>	PCR	11	0(0.0)	23	-52.2
<i>Bacillus anthracis</i>	PCR	6	0(0.0)	3	100.0
<i>Brucella sp.</i>	PCR	15	1(6.7)	2	650.0
Pseudorabies	ELISA	3	0(0.0)	0	300.0
Foot & Mouth Disease	PCR	0	0(0.0)	550	-100.0
Rinderpest	PCR	0	0(0.0)	168	-100.0
TOTAL		2,740	--	3,986	-31.3

- New Tests: *Coxiella burnettii* (Q fever) ELISA
Coxiella burnettii (marine mammal) real-time PCR

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 11/12 compared to fiscal year 10/11.

Test	Number 7/11-6/12	% of Total	Number 7/10-6/11	% Change
Trich - Culture Food Animal	858	10.7	1,491	-42.5
Trich - PCR Food Animal	1,590	19.8	757	110.0
Trich - Culture Small Animal	14	0.2	19	-26.3
Trich - PCR Small Animal	96	1.2	118	-18.6
<i>Neospora</i> Serology	385	4.8	594	-35.2
<i>Toxoplasma</i> Serology	30	0.4	288	-89.6
Knott's Test	8	0.1	10	-20.0
Heartworm Serology	396	4.9	378	4.8
<i>Ehrlichia/Lyme/ Anaplasma</i>	471(157 each)	5.9	471	0.0
Parasite ID	37	0.5	41	-9.8
Fecal Exam	2,370	29.4	2,577	-8.0
<i>Giardia</i> ELISA/IFA	433	5.4	578	-25.1
<i>Cryptosporidium</i> AF/IFA	644	8.0	670	-38.8
Baermann	79	1.0	78	1.3
Fluke exam	43	0.5	17	152.9
Giardia/Crypto PCR	5	0.1	100	-95.0
Soil Analysis (includes feed, water, sediment)	31	0.4	4	675.0
Occult Blood	30	0.4	60	-50.0
Strongyle Nematode & Other Helminth PCR	530	6.6	184	188.0
TOTAL	8,050	100.0	8,435	-4.6

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)	27/992 (2.7)	8/992 (0.8)	7/992 (0.7)	52/992 (5.2)	0/13 (0.0)	8/992 (0.8)
Feline (includes wild species)	6/128 (4.7)	0/128 (0.0)	0/128 (0.0)	3/128 (2.3)	0/11 (0.0)	2/128 (1.6)
Reptiles/Zoo/Other	1/56 (1.8)	--	--	5/56 (8.9)	--	4/56 (7.1)

FOOD & FIBER ANIMALS/EQUINE FECAL EXAMINATIONS

Species	Ascarids	Coccidia	Strongyles	<i>Nematodirus</i>	<i>Trichuris</i>	Tapeworms	Other	Lungworms
Bovine	- ^a	33/268 (12.3)	10/268 (3.7)	0/268 (0.0)	4/268 (1.5)	2/268 (0.7)	0/268 (0.0)	0/0 (0.0)
Ovine / Caprine	-	129/144 (89.6)	79/144 (54.9)	41/144 (28.5)	16/144 (11.1)	4/144 (2.8)	4/144 (2.8)	0/5 (0.0)
Camelids	-	262/179 ^b (146.4)	45/179 (25.1)	50/179 (27.9)	34/179 (19.0)	4/179 (2.2)	32/179 (17.9)	0/3 (0.0)
Cervids/ Wildlife/Zoo	2/49 (4.1)	8/49 (16.3)	16/49 (32.7)	13/49 (26.5)	7/49 (14.3)	6/49 (12.2)	0/49 (0.0)	3/46 (6.5)
Equine	8/540 (1.5)	4/540 (0.7)	230/540 (42.6)	--	--	4/540 (0.7)	1/540 (0.2)	0/1 (0.0)

^adash = not applicable

^bmore than 1 species in many samples

530 Strongyle PCR were performed on bovines. There were 72/530 (13.6%) *Cooperia*, 58/530 (10.9%) *Haemonchus*, 23/530 (4.3%) *Oesophagostomum*, 54/530 (10.2%) *Ostertagia* and 13/530 (2.5%) *Trichostrongylus*.

PARASITOLOGY

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

Species	<i>Giardia</i> (Fecal Exam)	<i>Giardia</i> (Fecal Ag)	<i>Giardia</i> (IFA)	<i>Cryptosporidium</i> (Acid Fast)	<i>Cryptosporidium</i> (IFA)
Canine	41/992 (4.1)	1/11 (9.1)	47/274 (17.2)	3/40 (7.5)	26/274 (9.5)
Feline	1/128 (0.8)	0/0 (0.0)	3/57 (5.3)	0/0 (0.0)	3/57 (5.3)
Bovine/Caprine/Ovine/ Porcine	0/421 (0.0)	-- ^a	4/18 (22.2)	59/186 (31.7)	3/18 (16.7)
Camelids	0/179 (0.0)	--	0/9 (0.0)	0/0 (0.0)	0/9 (0.0)
Equine	2/540 (0.4)	--	2/15 (13.3)	0/0 (0.0)	1/15 (6.7)
Reptiles/Zoo/Wildlife	7/96 (7.3)	--	4/44 (9.1)	0/0 (0.0)	3/44 (6.8)

^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	Neospora	Knotts Test	Heartworm	<i>Ehrlichia</i> / <i>Lyme</i> / <i>Anaplasma</i>	<i>Toxoplasma</i>
Bovine	1/858 (0.1)	25/1590 (1.6)	16/155 (10.3)	-- ^b	-	-	-
Canine	0/0 (0.0)	0/2 (0.0)	17/185 (9.2)	2/8 (25.0)	15/370 (4.1)	8/471 (1.7)	-
Feline	2/4 (14.3)	16/94 ^a (17.0)	1/9 (11.1)	-	0/26 (0.0)	-	-
Avian/Zoo/ Wildlife	-	-	3/36 (8.3)	-	--	0/0 (0.0)	8/30 (26.7)

^aIncludes all trichomonads.

^bdash = not applicable

- New Tests – *Tritrichomonas foetus* pooled real-time PCR
Bovine Coccidia ID

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 11/12 compared to fiscal year 10/11. The bottom table indicates the results of testing for copper for the given species and tissue sample.

Nutrient	Number 7/11-6/12	%	Number 7/10-6/11	% Change
Copper	1,842	44.4	1,601	15.1
Zinc	464	11.2	523	-11.3
Iron	432	10.4	407	61
Selenium + GSH.Px	426	10.3	691	-38.4
Other trace minerals (Mo,Co,Mn)	172	4.1	291	-40.9
Vitamin A	363	8.7	155	134.2
Vitamin E	415	10.0	258	60.9
Macro elements (Ca,Mg,K,Na, P,Cl)	29	0.7	179	-83.8
Special Request	9	0.2	9	0.0
TOTAL	4,152	100.0	4,114	0.9

COPPER

Species	Tissue	TOTAL	Results
Bovine	Serum	100	47 < 0.6ppm (deficient)
Bovine	Liver	88	9 < 40ppm deficient 0 > 600ppm toxic
Canine	Liver	1,436	202 > 1,500ppm (toxic)

There were 116/398(29.1%) 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 11/12 compared to fiscal year 10/11.

Toxicant	Number 7/11-6/12	%	Number 7/10-6/11	% Change
Calculi	174	24.5	176	-1.1
Bromide	172	24.2	180	-4.4
Cadmium	9	1.3	4	125.0
Cholinesterase	5	0.7	18	-72.2
Cyanide	4	0.6	0	100.0
Nitrate/Nitrite	108	15.2	110	-1.8
Strychnine	3	0.4	9	-66.7
Sulfate/Sulfur	108	15.2	214	-49.5
Arsenic	16	2.3	11	45.5
Lead	84	11.8	87	-3.4
Mercury	23	3.2	15	53.3
Alpha- Mannosidase or Swainsonine	4	0.6	0	100.0
Other	1	0.1	50	-98.0
TOTAL	711	100.0	874	-18.6

There was 0 positive Strychnine from 3 samples.

There were 4 cases of lead toxicity.

- New Test: Manganese (GFAAs)

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 11/12 compared to fiscal year 10/11 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 7/11-6/12	Toxo IgG/M 7/10-6/11 (%change)	Toxo CSF IgG/M 7/11-6/12	Toxo CSF IgG/M 7/10-6/11 (% change)	RMSF IgG 7/11-6/12	RMSF IFA 7/10-6/11 (%change)
Canine	2,984	2,559(16.6)	62	43(44.2)	12	18(-33.3)
Feline	3,915	4,367(-10.4)	12	7(71.4)	NA	NA
TOTAL	6,899	6,926(-0.4)	74	50(48.0)	12	18(-33.3)

Species	Positive Toxo IgG	Positive Toxo IgM	Positive Toxo CSF IgM	Positive RMSF IFA
Canine	373/2,984 (12.5)	245/2,984 (8.2)	3/62 (4.8)	0/12 0/0
Feline	561/3,915 (14.3)	499/3,915 (12.7)	0/12 (0.0)	NA
TOTAL	934/6,899 (13.5)	744/6,899 (10.8)	3/74 (4.1)	0/12 (0.0)

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 11/12 compared to fiscal year 10/11.

Test	Number 7/11-6/12	Number Positive (%)	Number 7/10-6/11	% Change
PCR Bartonella	90	2(2.2)	118	-23.7
PCR Cryptosporidia	26	2(7.7)	22	18.2
PCR Giardia	14	6(42.9)	NA	NA
PCR <i>M. haemocanis</i> / <i>M. haematoparvum</i>	26	0(0.0)	59	-55.9
PCR <i>M. haemofelis</i> / <i>M. haemominutum</i>	202	20(9.9)	210	-3.8
PCR <i>Neospora caninum</i>	53	1(1.9)	57	-7.0
PCR <i>Toxoplasma gondii</i>	331	3(0.9)	207	59.9
PCR Ehrlichia/ Anaplasma/Neorickettsia	270	6(2.2)	314	-14.0
PCR <i>Rickettsia</i> sp.	21	0(0.0)	38	-44.7
<i>E. canis</i> IFA	28	4(14.3)	31	-9.7
TOTAL	1,061	--	1,056	0.5

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 11/12 is compared to fiscal year 10/11 and the percent change is given in parentheses.

Species	CBC 7/11-6/12	CBC 7/10-6/11 (%change)	Chemistry Panel 7/11-6/12	Chemistry/Panel 7/10-6/11 (%change)	Fluid & Cytology 7/11-6/12	Fluid & Cytology ^a 7/10-6/11 (%change)	Other 7/11-6/12	Other 7/10-6/11 (%change)
Canine	753	951(-20.8)	470	502(-6.4)	3,266	3,178(2.8)	543	855(-36.5)
Feline	207	228(-9.2)	143	141(1.4)	743	772(-3.8)	211	241(-12.4)
Equine	335	375(-10.7)	366	384(-4.7)	106	101(5.0)	23	81(-71.6)
Bovine	35	15(133.3)	151	149(1.3)	5	8(-37.5)	13	12(8.3)
Other	216	67(222.4)	131	72(81.9)	24	28(-14.3)	42	31(35.5)
Avian/ Reptile	20	24(-16.7)	14	18(-22.2)	5	3(66.7)	0	8(-100.0)
TOTAL	1,566	1660(-5.7)	1,275	1266(0.7)	4,149	4,090(1.4)	832	1,228(-32.2)

^aThere were 625 additional site cytologies in FY 11/12 compared to 851 in 10/11.

- There were 1,846 submissions of tissue for PCR to detect lymphoid malignancies (compared to 1,726 in FY 10/11), and 1,582 submissions for flow cytometry (compared to 1,293 in FY 10/11).

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 11/12 compared to fiscal year 10/11 is given in parentheses. TDM stands for therapeutic drug monitoring, and is primarily for phenobarbital.

Species	Pituitary Adrenal Axis	Pituitary Thyroid Axis	Insulin	Total 7/11-6/12	Total 7/10-6/11 (% change)	TDM 7/11-6/12	TDM 7/10-6/11 (% change)
Equine	278	66	162	506	428(18.2)	0	0(0.0)
Canine	647	1,049	13	1,709	1,590(7.5)	284	268(6.0)
Feline	5	390	0	395	378(4.5)	10	8(25.0)
Other	39	4	1	44	7(528.6)	0	0(0.0)
TOTAL	969	1,509	176	2,654	2,403(10.4)	294	276(6.5)

ROCKY FORD

Agent Name	Test Performed	Number 7/11-6/12	Number Positive	% Positive	Number 7/10-6/11	% Change
BLV	ELISA	61,365			1,607	3718.6
BVD	FA	85			117	-27.4
BVD PCR pools	PCR	1,102			1,298	-15.1
BVD Samples Pooled	PCR	44,412			50,850	-12.7
BVD	C-ELISA	2,154			3,240	-33.5
IBR	FA	67			94	-28.7
BT	ELISA	2,956			1,603	84.4
Rota	ELISA	1			19	-94.7
Corona	FA	12			0	100.0
BRSV	FA	23			22	4.5
<i>B. abortus</i>	Card Test	39			33	18.2
<i>M. paratuberculosis</i>	ELISA	5,334			1,528	249.1
Trichmonas	Culture	242			227	6.6
Trichmonas	PCR	6,356			4,533	40.2
Trichomonas pooled	PCR	2,613			3,863	-32.4
Trichomonas control program	PCR	10,583			9,471	11.7
CAE	cELISA/AGID	104			266	-60.9
OPP	AGID	654			2,037	-67.9
EIA	AGID	6,736			8,170	-17.6
EIA	ELISA	477			535	-10.8
<i>B. canis</i>	IFA	20			46	-56.5
Campylobacter	Culture	1,714			NA	NA
Various Bacteria	Culture	962	NA	NA	NA	NA
Nitrate	EMQ Strip	473	NA	NA	NA	NA
TOTAL		148,484			89,559	65.8

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WESTERN SLOPE

Test Performed	Number 7/11-6/12	Number Positive	% Positive	Number 7/10-6/11	% Change
Aerobic culture	444	NA	NA	558	-20.4
Anaerobic culture	69	NA	NA	112	-38.4
Milk culture	145	NA	NA	174	-16.7
Antibiotic susceptibility	275	NA	NA	301	-8.6
Fungal culture	19	NA	NA	16	18.8
Campylobacter culture	30			39	-23.1
Mycoplasma culture	0	0	0.0	2	0.0
Bovis ELISA	10,199	positive indeterminate	positive indeterminate	9,933	2.7
<i>B. abortus</i>	2	0	0.0	118	-98.3
<i>M. paratuberculosis</i>	0	0	0.0	35	-100.0
EIA (Coggins)	1,577	0	0.0	1,871	-15.7
CAE AGID	26			60	-95.6
OPP AGID	7				
BVD cELISA & PCR	12			273	-95.6
Bluetongue AGID	0	0	0.0	1	-100.0
FA Corona	3			19	-84.2
Trichomonas Culture/PCR	2,462			2,808	-12.3
Fecal exam	53	NA	NA	97	-45.4
Neospora Serology	0	0	0.0	56	-100.0
Chemistry	7	NA	NA	2	250.0
Necropsy	93	NA	NA	89	4.5
Histopathology	636	NA	NA	748	-15.0
Uterine Biopsy	1	NA	NA	2	-50.0
Cytology	43	NA	NA	94	-54.3
TOTAL	16,103	NA	NA	17,408	-7.5

*53.8% Food Animal, 6.5% Equine, 9.7% Wildlife, 30.1% Pets.

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