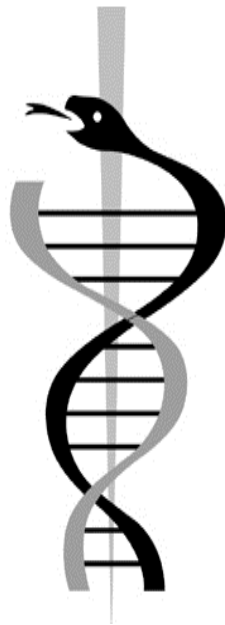


**COLORADO STATE UNIVERSITY  
VETERINARY DIAGNOSTIC LABORATORIES**

---

**ANNUAL REPORT 2011**

---



**Colorado State University  
Diagnostic Laboratories  
300 West Drake  
Fort Collins, CO 80523  
Phone 970/297-1281  
Fax 970/297-0320  
email: [dlab@colostate.edu](mailto:dlab@colostate.edu)  
<http://www.cvmbs.colostate.edu/dlab>**

**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 2011. The testing and disease statistics are by the fiscal year July 1, 2010 to June 30, 2011. 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. Fowles*

## DIAGNOSTIC LABORATORY PERSONNEL

### FORT COLLINS

Office Staff	Barbara Powers, DVM/ PhD/DACVP	Director
	Connie Heighes	Business Manager/Asst to Director
	Joe Strecker	IT Manager for D-Lab (CRG)
	Carrie Schmer	Computer Services (CRG)
	Tracy Bazler	Computer Services (CRG)
	Jay Kammerzell	IT Consultant
	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
	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
	Deanna Bishop	Sample Receiving
	Lisa Regan	Sample Receiving
	Jan Roberts	Word Processing
	Kaye Williams	Word Processing
Avian Diagnostics and BSL3 Operations	Kristy Pabilonia, DVM/DACVM	Section Head
	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
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
	Mike Russell	Microbiologist
	Barbara Traut	Microbiologist
	Anita Schiebel	Microbiologist
	Deb Beard	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/DACVM	Section Head
	Brandy Nagamine	Lab Technician
Pathology	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

## 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
	Annie Nelson	Lab Technician
	Bruce Cummings	Research Associate
Quality Assurance	Dwayne Hamar, PhD	QA Manager
	Christina Weller	QA Asst Manager
<b>ROCKY FORD</b>		
Office Staff	James Kennedy, DVM/MS (deceased)	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
<b>GRAND JUNCTION</b>		
Laboratory	Don Kitchen, DVM/PhD/DACVP	Director
	Kim Hannafious	Microbiologist
	Cheryl Thomas	Microbiologist
	Antonia Histia	Admin Asst
	Fred Crippen	General Laborer
	Chris King	Admin Asst

## AWARDS, HONORS AND SERVICE MILESTONES, 2011

### 5 Years of Service

Katie Leber  
Annie Nelson-Wensman  
Dayla Pearl  
Brandy Nagamine  
Cheryl Thomas  
Emma Pribbeno

### 10 Years of Service

### 15 Years of Service

Jeanette Bishop

### 20 Years of Service

### 25 Years of Service

Gayle Thompson  
Barbara Powers

### 30 Years of Service

2011 E.P. Pope Award, American Association of Veterinary Laboratory Diagnosticians – Barb Powers  
Colorado Emerging Leader, American Veterinary Medical Association – Kristy Pabilonia

## 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. 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. Tolani Francisco/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  
Shannon McLeland, DVM  
Seeung Yoo, DVM  
Deanna Dailey, DVM  
Brendan Podell, DVM  
Matt Freier, DVM (Clinical Pathology)  
Craig Miller, DVM  
Dan Regan, DVM  
Elijah Edmundson, DVM  
Laura Brandt, DVM (Clinical Pathology)  
Mauren Emanuelli, DVM (Clinical Pathology)  
Julie Rysleff, DVM (Clinical Pathology)

### **Microbiology**

Valerie Johnson, DVM

### **Comparative Lab Animal Medicine**

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

## 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, 2011

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, 2011

**Ballweber LR.** Anthelmintic resistance: fact or fiction? Central Veterinary Conference-East. Washington, DC. 2011.

**Ballweber LR.** Parasites and their expanding universe. Central Veterinary Conference-East. Washington, DC. 2011.

**Ballweber LR.** Giardia and genotypes—What does it all mean? Central Veterinary Conference-East. Washington, DC. 2011.

**Ballweber LR.** Cryptosporidium—do I have to learn all those new species? Central Veterinary Conference-East. Washington, DC. 2011.

**Ballweber LR.** Echinococcus granulosus—A re-emerging threat. Central Veterinary Conference-East. Washington, DC. 2011.

**Ballweber LR.** Tapeworms in all the wrong places—Unusual presentations of common parasites. Central Veterinary Conference-East. Washington, DC. 2011.

**Ballweber LR.** A refresher on *Baylisascaris procyonis*. Central Veterinary Conference-East. Washington, DC. 2011.

**Ballweber LR.** Anthelmintic resistance in cattle—what's real? Montana Veterinary Medical Association Summer Meeting. Billings, MT. 2011.

**Ballweber LR.** The return of the fecal flotation in the management of equine small strongyles. Montana Veterinary Medical Association Summer Meeting. Billings, MT. 2011.

**Ballweber, LR.** “Trich”diagnostics—the science behind the tests. Montana Veterinary Medical Association Summer Meeting. Billings, MT. 2011.

**Ballweber LR.** Gastrointestinal parasites of dogs and cats in the west. Montana Veterinary Medical Association Summer Meeting. Billings, MT. 2011.

**Ballweber LR.** Ectoparasites of dogs and cats—beyond fleas and ticks. Montana Veterinary Medical Association Summer Meeting. Billings, MT. 2011.

**Ballweber LR.** Diagnostic parasitology—what's old, what's new and what works. Montana Veterinary Medical Association Summer Meeting. Billings, MT. 2011.

**Ballweber LR.** Heartworm. Larimer County Veterinary Medical Association. 2011.

Bowen R, Marlenee N, Tolany A, Soffler C, **Aboellail TA.** Histologic lesions from different animal models including goats, ferrets and mice infected with high impact pathogens. Regional Centers for Excellence for Biodefense and Emerging Infectious Diseases. Denver, CO. 2011.

Cadmus JM, Palmer RH, **Duncan C.** The effect of pre-operative planning method upon the recommended tibial tuberosity advancement cage size. CVMBS Research Day, CO. 2011.

Cadmus JM, Palmer RH, **Duncan C.** The effect of pre-operative planning method upon the recommended tibial tuberosity advancement cage size. Vet Orthopedic Society Conference. Snowmass, CO. 2011.

**Cadmus KJ, Weller CB, Ehrhart EJ, Powers BE, Pabilonia KL.** Detection and isolation of pH1N1 influenza A virus from a privately-owned small swine herd in Colorado. AAVLD Annual Conference. Buffalo, NY. 2011.

Carroll J, **Ballweber LR.** Comparison of two fecal flotation techniques for the detection of gastrointestinal parasites of dogs and cats. American Association of Veterinary Parasitologists. 56<sup>th</sup> Annual Meeting. St. Louis, MO. 2011.

Carroll J, **Ballweber LR.** Comparison of two centrifugal fecal flotation techniques for the detection of canine and feline gastrointestinal parasites. AAVLD, 54<sup>th</sup> Annual Meeting, Buffalo, NY. 2011.

Davies JL, **Duncan CG,** Wobeser BK, Hendrick S, Kidney BA, MacDonald VS, Simko E. Tumor size as a prognostic indicator of post-excisional survival time in cats diagnosed with mammary carcinoma: A retrospective study of 212 cases. American College of Vet Path Annual Conference. 2011.

Dubielzig RR, Hoffman A, **Ehrhart EJ,** Zarfoss M. A spontaneous neovascular proliferative vitreoretinopathy in cats with features similar to retrainopathy of prematurity. ARVO. Fort Lauderdale, FA. 2011.

**Duncan C,** Wheeler L, Greig D, Zuerner R, Gulland F. Diagnostic testing for Leptospirosis in California Sea Lions (*Zalophus californianus*). IAAAM. Las Vegas. 2011.

**Duncan C, Spraker T,** et al. Histologic lesions in Northern Fur Seal (*Callorhinus ursinus*) placentas. St. Paul Island, Alaska. Alaska Marine Science Symposium. Anchorage, Alaska. 2011.

**Frank CB,** Valentin SY, Scott-Moncrieff JCR, Miller MA. Clinical and histomorphometric correlations in canine adrenalitis and adrenocortical atrophy. American College of Veterinary Pathology Annual Meeting. Nashville, TN. 2011.

**Frank C,** Ramos-Vara J. Porcine respiratory and reproductive syndrome viral vasculitis and pneumonia in a pig. Midwest Association of Veterinary Pathologists Meeting. Zion, IL. 2011.

**Frank C,** Ramos-Vara J, Dusold D. Rhabdomyosarcoma in an alpaca: a morphologic and Immunohistochemical study. National Society for Histotechnology Symposium and Conference. Cincinnati, OH. 2011.

**Han S.** Severe hoof deformities in free ranging elk in western Washington state. American Assoc of Veterinary Laboratory Diagnosticians Annual Meeting. Buffalo, NY. 2011.

Hoover C, **Mason GL, Ehrhart EJ.** Cutaneous metastasis of a malignant pheochromocytoma in a dog. 62<sup>nd</sup> Annual Meeting of the ACVP. Nashville, TN. 2011.

Krafsur G, **Spraker TR,** Adams B, George C, Hanns C, Suydarr R, Hepa T, Browa H. Baseline histological health assessment of subsistence harvested Arctic marine mammals from the North Slope Borough Villages of Barrow and Wainwright, Alaska. American College of Veterinary Pathologists Annual Meeting. Nashville, TN. 2011.

Johnson V, Garner A, **Van Campen H, Han S.** Systemic disease induced by coronavirus infection in ferrets. American Assoc of Veterinary Laboratory Diagnosticians Annual Conference. Buffalo, NY. 2011.

Jumar J, Henderson A, Weir RL, **Ehrhart EJ,** Forster GM, Goodyear AW, Leach JE, Bauer JE, Sow S, Ryan EP. Induction of non-specific gut mucosal immunity and colonization resistance against Salmonella by dietary rice bran in mice. Platform Presentation. Keystone Symposia Meeting: Malnutrition, Gut-Microbial Interactions and Mucosal Immunity to Vaccines. Le Meridien, New Delhi, India. 2011.

**McLeland S,** Quimby JM, **Duncan CG.** A comparison of biochemical and histopathologic staging in cats with renal disease. AAVLD Annual Conference. Buffalo, NY. 2011.

McGrew AK, O'Hara TM, Salman MD, **Ballweber LR.** Are gastrointestinal helminthes of ringed seals (*Phoca hispida*) and spotted seals (*Phoca largha*) capable of mercury (THg) uptake within their definitive host? CVMBS Research Symposium, Fort Collins, CO. 2011.

- McGrew AK, O'Hara TM, Gulland F, Van Bonn W, Stricker CA, **Ballweber LR**. Total mercury (Thg) distribution in California sea lions (*Zalophus californianus*) and their gastrointestinal helminthes. Graduate Women in Science National Symposium. 2011.
- McGrew AK, O'Hara TM, Gulland F, Van Bonn W, Stricker CA, **Ballweber LR**. Distribution of total mercury (THg) in California sea lions (*Zalophus californianus*) and their parasitic fauna. American Association of Veterinary Parasitologists. 56<sup>th</sup> Annual Meeting. St. Louis, MO. 2011.
- Modiano JF, Bellgaru D, Cutter GR, Lana SE, Ehrhart NE, **Ehrhart EJ**, Wilke V, Charles JB, Scott MC, Posniak J, Duke RC. Inflammation, apoptosis and necrosis induced by neoadjuvant Fas Ligand gene therapy improves survival of dogs with spontaneous bone cancer. AAI Annual Meeting, San Francisco, CA. 2011.
- Myers E, **Ehrhart EJ**, Charles B, **Spraker T**, Gelatt T, **Duncan C**. Apoptosis in normal and *Coxiella burnetii* infected placentas from Alaskan Northern Fur Seals (*Callorhinus ursinus*). Meril Vet Scholars Program. Orlando, FL. 2011.
- Myers E, **Ehrhart EJ**, Charles B, **Spraker T**, **Duncan C**. Apoptosis in normal and *Coxiella burnetii* infected placentas from Northern Fur Seals (*Callorhinus ursinus*). Meril Student Research Day. 2011.
- Myers E, **Ehrhart EJ**, Charles B, **Spraker T**, **Duncan C**. Apoptosis in normal and *Coxiella burnetii* infected placentas from Northern Fur Seals (*Callorhinus ursinus*). CVMBBS, Research Day, CO. 2011.
- Pabilonia KL**. Global impacts of avian influenza viruses: biosafety and biosecurity challenges. USDA Agriculture Research Service International Biosafety and Biocontainment Symposium. Baltimore, MD. 2011.
- Pabilonia KL**. Salmonella and poultry production. Zoonoses Conference. Denver, CO. 2011.
- Pabilonia KL**. Backyard poultry challenges and opportunities. Northeast United States Animal Health Association Annual Meeting. Rehoboth Beach, DE. 2011.
- Pabilonia KL**, Thompson S. The National Animal Health Laboratory Network: Evidence preservation and protocols for sample management. Denver Multi-Sector Infrastructure Protection and Threat Workshop. Denver, CO. 2011.
- Phillips A, **Aboellail TA**, Olsen K. Pathologic lesions and patterns of luciferase luminescence in CD-1 mice exposed to aerosol and subcutaneous infection with a recombinant neurovirulent western equine encephalitis virus. American Association of Veterinary Laboratory Diagnosticians Annual Meeting. Buffalo, NY. 2011.
- Prager K, Greig D, **Duncan C**, Guglielmino A, Zuerner R, Gulland F, Lloyd-Smith J. Leptospirosis in California sea lions – challenging the dogma? Wildlife Disease Association Annual Meeting. Quebec City. 2011.
- Prager K, Greig D, **Duncan C**, Soper J, Zuerner R, Gulland F, Lloyd-Smith J. Leptospirosis in California sea lions – challenging the dogma? Golden Gate Research Symposium. San Francisco. 2011.
- Read RL, Wallace AD, Perry JA, **Duncan CG**, Duerr FD. Assessment and validation of magnification in digital radiology. Vet Orthopedic Society Conference. Snowmass, CO. 2011.
- Samaniego AC, Ronholdt CJ, **Ehrhart EJ**, Turner AS, Seim HB, Bogdanshy S, Atkinson BL. Evaluation of processed human amnion membrane to prevent post-operative adhesions in an ovine laminectomy. ORS Annual Meeting. Long Beach, CA. 2011
- Schuler B, Faford J, **Spraker T**, Powers J, **Duncan C**. Potential effects of volcanic emissions (VOG) on respiratory health of free-ranging Mouflon sheep. The Wildlife Society Meeting. Kona, HI. 2011.
- Smirnova NP, **Van Campen H**, Bielefeldt-Ohmann H, Antoniazzi AQ, Weiner CM, **Webb BT**, Ashley RL, Henkes LE, Hansen PH. Establishment of fetal persistent infection with bovine viral diarrhea virus in early gestation induces

robust response of type I interferon stimulated genes in fetal blood cells. Gordon Research Conference. Garba, Italy. 2011.

Soffler C, **Aboellail TA**, Marlof A, Bosco Lauth A, Bowen R. Gross and histopathologic characterization of caprine melioidosis after aerosol challenge with *Burkholderia pseudomallii*. American Association of Veterinary Laboratory Diagnosticians Annual Meeting. Buffalo, NY. 2011.

**Spraker TR**, Ream RF, Towell R. Causes of mortality in subadult and adult Northern fur seals (*Callorhinus ursinus*), St. Paul Island Pribilof Islands, Alaska, 1986-2010. Alaska Marine Science Symposium. Anchorage, AK 2011.

Tangtrongsup S, Scorza AV, **Ballweber LR**, Reif JS, Lappin MR, Salman MD. Intestinal parasites of dogs in Chiang Mai, Thailand. CVMBBS Research Symposium, Fort Collins, CO. 2011.

Wells C, **Duncan C**, **Spraker T**, Wobeser B, Peckham H, Aguirree AA. Histologic changes of grossly normal skin in Loggerhead Turtles (*Caretta caretta*) captured in Bahia Magdalena, Baja, California Sur, Mexico. Poster Presentation. IAAAM, Las Vegas. 2011.

Zeh KA, Charles JB, **Ehrhart EJ**, Kamstock DA. Comparison of immunocytochemical and immunohistochemical c-Kit expression patterns in canine cutaneous mast cell tumors. CVMBBS Research Symposium, Fort Collins, CO. 2011.

## SCIENTIFIC PUBLICATIONS BY FACULTY MEMBERS AND STUDENTS, 2011

Arshed MJ, Magnuson RJ, Triantis J, Abubakar M, **Van Campen H**, Salman M. Comparison of RNA extraction methods to augment the sensitivity for the differentiation of vesicular stomatitis virus Indiana1 and New Jersey. J. Clin Lab Anal, 25(2):95-9. 2011.

Ashbaugh EA, McKiernan BC, Miller CJ, **Powers B**. Nasal hydropulsion: A novel tumor biopsy technique. J Am Anim Hosp Assoc 47:312-316. 2011.

**Ballweber, LR, Baeten LA**. Use of macrocyclic lactones in cattle in the USA. Curr Pharm Biotechnol. [Epub ahead of print]. 2011.

Bartlett KH, Cheng P, **Duncan C**, Galanis E, Hoang L, Kidd S, Lee MK, Lester S, MacDougall L, Morshed M, Taylor M, Kronstad J. A decade of experience—*Cryptococcus gattii* in British Columbia. Mycopathologia. (E pub ahead of print). 2011.

Bosco-Lauth A **Mason G**, Bowen R. Pathogenesis of Japanese encephalitis virus infection in a golden hamster model and evaluation of flavivirus cross-protective immunity. Am J Trop Med Hyg., 84(5):727-32. 2011.

Brandt LE, Bohn AA, Charles JB, **Ehrhart EJ**. Localization of canine, feline and mouse renal membrane proteins. Vet Pathol. [Epub ahead of print]. 2011.

Burgess BA, Noyes NR, **Bolte D, Hyatt DR**, Van Metre DC, Morley PS. Rapid salmonella detection in experimentally inoculated equine feces using two commercially available lateral flow antigen detection systems. J. Vet Int Med 25:671-2. 2011.

Carlson JC, Linz GM, **Ballweber LR, Elmore SA**, Pettit SE, Franklin AB. The role of European starlings in the spread of coccidia within concentrated animal feeding operations. Vet Parasitol, 180(3-4):340-3. 2011.

Carlson JC, Engeman RM, **Hyatt DR**, Gilliland RL, DeLiberto, TJ, Clark L, Bodenchuk MJ, Linz GM. Efficacy of European starling control to reduce *Salmonella enterica* contamination in a concentrated animal feeding operation in the Texas panhandle. *BMC Vet Res*, 7:9. 2011.

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. *J App Eco* 48:479-486. 2011.

Chavez DJ, Levan IK, Miller MW, **Ballweber LR**. *Baylisascaris procyonis* in raccoons (*Procyon lotor*) from eastern Colorado, an area of undefined prevalence. *Vet Parasitol*, [Epub ahead of print]. 2011.

Chen MF, Cheng YW, Popochock D, Russell B, Kerwin S, Bertolini J, Glecker J, Snekvik KR, **Han S**. Isometamidion chloride reduces mortality of adult Chinook salmon (*Oncorhynchus tshawytscha*) due to *Cryptobia salmositica*. *North American J of Agriculture* 73:304-310. 2011.

Chiavaccini L, Hassel DM, Shoemaker ML, Charles JB, Belknap JK, **Ehrhart EJ**. Detection of calprotectin and apoptotic activity within the equine colon from horses with black walnut extract-induced laminitis. *Vet Immunol Immunopathol*. 144 (3-4):366-73. 2011.

Cruz R, Steyn P, Collins D, **Powers B**, Urigh J. Radiography, 99mTc-HDP and 111In labeled vitamin B12 SPECT of canine osteosarcoma: a comparative study. *J Am Anim Hosp Assoc*. 47(4):229-35. 2011.

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*, 48(1):73-84. 2011.

**Duncan C**, Krafsur G, **Podell B**, **Baeten LA**, Levan I, Charles B, **Ehrhart EJ**. Leptospirosis and Tularaemia in raccoons (*Procyon lotor*) of Larimer County, Colorado. *Zoonoses Public Health*. [E pub ahead of print]. 2011.

**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. *Vector-borne and Zoonotic Diseases*. (E pub ahead of print). 2011.

**Duncan C**, Bartlett KH, Lester S, Bobsien B. Campbell J, Stephen C, Raverty S. Surveillance for *Cryptococcus gattii* in horses of Vancouver Island, British Columbia, Canada. *Medical Mycology* 49(7):734-8. 2011.

Fenimore A, Varanat M, Maggi R, **Schultheiss P**, Breitschwerdt E, Lappin MR. *Bartonella* spp. DNA in cardiac tissues from dogs in Colorado and Wyoming. *J Vet Intern Med*, 25(3):613-6. 2011.

**Fox KA**, Wootton SK, Quackenbush SL, Wolfe LL, Levan IK, Miller MW, **Spraker TR**. Paranasal sinus masses of Rocky Mountain bighorn sheep (*Ovis canadensis canadensis*). *Vet Pathol*, 48(3):706-12. 2011.

Garcia da Silva E, Powell CC, Gionfriddo JR, **Ehrhart EJ**, Hill AE. Histologic evaluation of the immediate effects of diamond burr debridement in experimental superficial corneal wounds in dogs. *Vet Ophthalmol*, 14(5):285-91. 2011.

Gingrich EN, Kurt T, **Hyatt DR**, Lappin MR, Ruch-Gallie R. Prevalence of methicillin-resistant staphylococci in northern Colorado shelter animals. *J Vet Diagn Invest* (5):947-50. 2011.

Hueffer K, Holcomb D, **Ballweber LR**, Gende SM, Blundell G, O'Hara TM. Serologic surveillance of pathogens in a declining harbor seal (*Phoca vitulina*) population in Glacier Bay National Park, Alaska, USA and a reference site. *J Wildl Dis* 47(4):984-8. 2011.

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, Gruver AD, Hellmen 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 evaluations, and reporting of tumor biopsy specimens in veterinary surgical pathology. *Vet Pathol*, 48(1):19-31. 2011.

Keller M, **Han S**, Snekvik. Severe anisakiasis and cutaneous myxoma in a California yellowtail (*Seriola lalandi volenciennes*). *J. of Fish Diseases* 34:635-9. 2011.

Lester S, Malik R, Bartlett K, **Duncan C**. Cryptococcosis; update and the emergence of *Cryptococcus gattii*. *J Vet Clin Path.* 40(1); 4-17. 2011.

Lyons ET, **Spraker TR**, De Long RL, Ionita M, Melin SR, Nadler SA, Tolliver SC. Review of research on hookworms (*Uncinaria lucasi Stiles*, 1901) in northern fur seals (*Callorhinus ursinus Linnaeus*, 1758). *Parasitol Res*, 109(2):257-65. 2011.

Might K, Hanzlik KA, Case JB, **Duncan C**, Egger EL, Rooney MB, Duerr FM. In-vitro comparison of proximal ulnar osteotomy and distal ulnar osteotomy with release of the interosseous ligament in a canine model. *Vet Surg.* 40(3):321-6. 2011.

Miller AG, **Halsey CH**, Miller MD, Bohn AA. What is your diagnosis? Intracranial mass in a dog. *Vet Clin Pathol.*, 40(4):563-4. 2011.

Minke JM, Siger L, Cupillard L, **Powers B**, Bakonyi T, Boyum S, Nowotny N, Bowen R. Protection provided by a recombinant ALVAC(®)-WNV vaccine expressing the prM/E genes of a lineage 1 strain of WNV against a virulent challenge with a lineage 2 strain. *Vaccine.* 29(28):4608-12.

Morley PS, Dargatz DA, **Hyatt DR**, Dewell GA, Patterson JG, Burgess BA, Wittum TE. Effects of restricted antimicrobial exposure on antimicrobial resistance in fecal *Escherichia coli* from feedlot cattle. *Foodborne Pathog Dis*, 8(1):87-989. 2011.

Nemeth NM, Thomsen BV, **Spraker TR**, Benson JM, Bosco-Lauth AM, Oesterle PT, Bright JM, Muth JP, Campbell TW, Gidlewski TL, Bowen RA. Clinical and pathologic responses of American crows *Corvus brachyrhynchos* and fish crows (*C ossifragus*) to experimental West Nile virus infection. *Vet Pathol*, 48(6):1061-74. 2011.

Ordway DJ, Shang S, Henao-Tamayo M, Obregon-Henao A, Nold L, Caraway M, Shanley CA, Basaraba RJ, **Duncan C**, Orme IM. BCG mediated protection against W-Beijing strains of , Orme IM. BCG mediated protection against W-Beijing strains of *Mycobacterium tuberculosis* is diminished concomitant with the emergence of regulatory T cells. *Clin Vaccine Immunol.* 18(9):1527-35. 2011.

Perrott MR, Sigurdson CJ, **Mason GL**, Hoover EA. Evidence for distinct CWD strains in experimental CWD in ferrets. *J Gen Virol.* [Epub ahead of print]. 2011.

Phelps HA, Kuntz CA, Milner RJ, **Powers BE**, Bacon NJ. Radical excision with five-centimeter margins for treatment of feline injection-site sarcomas: 91 cases (1998-2002). *J Am Vet Med Assoc*, 239(1):97-106. 2011.

Rhyan JC, Miller MW, **Spraker TR**, McCollum M, Nol P, Wolfe LL, Davis TR, Creekmore L, O'Rourke KI. Failure of fallow deer (*Dama dama*) to develop chronic wasting disease when exposed to a contaminated environment and infected mule deer (*Odocoileus hemionus*). *J Wildl Dis*, 47(3):739-44. 2011.

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.* [Epub ahead of print]. 2011.

**Schultheiss PC**, **Gardiner DW**, Rao S, Olea-Popelka F, Tuohy JL. Association of histologic tumor characteristics and size of surgical margins with clinical outcome after surgical removal of cutaneous mast cell tumors in dogs. *J Am Vet Med Assoc.*, 238(11):1464-9. 2011.

Scorza, AV, **Duncan C**, Miles L, Lappin MR. Prevalence of selected zoonotic and vector-borne agents in dogs and cats in Costa Rica. *Vet Parasitol.* 183(1-2):178-83. 2011.

**Seelig DM, Mason GL**, Telling GC, Hoover EA. Chronic wasting disease prion trafficking via the autonomic nervous system. *Am J Pathol*, 179(3):1319-28. 2011.

Shoeneman JK, **Ehrhart EJ**, Eickhoff JC, Charles JB, **Powers BE**, Thamm DH. Expression and function of Survivin in canine osteosarcoma. *Cancer Res.* [Epub ahead of print]. 2011.

**Slota KE**, Hill AE, Keefe TJ, Bowen RA, **Pabilonia KL**. Biosecurity and bird movement practices in upland game bird facilities in the United States. *Avian Dis.* 55(2):180-6. 2011.

**Slota KE**, Hill AE, Keefe TJ, Bowen RA, Miller RS, **Pabilonia KL**. Human-bird interactions in the United States upland gamebird industry and the potential for zoonotic disease transmission. *Vector Borne Zoonotic Dis*, 11(8):1115-23. 2011.

Valli VE, San Myint M, 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, Roccabianca 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*, 48(1):198-211. 2011.

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* 40(2):61-70. 2011.

Zhou J, Neff CP, Liu X, Zhang J, Li H, Smith DD, Swiderski P. **Aboellail T**, Huang Y, Du Q, Liang Z, Peng L, Akkina R, Rossi JJ. Systemic administration of Combinatorial dsRNA via nanoparticles efficiently suppresses HIV-1 infection in humanized mice. *Am Society of Gene and Cell Therapy* (epub ahead of print). 2011.

## PRESENTATIONS/OUTREACH TO THE PUBLIC, 2011

**Ballweber LR**. The top 5 parasite symptoms and how do we figure out who's there. Colorado Council for Wildlife Rehabilitation Annual Education Symposium. Loveland, CO. 2011.

**Pabilonia K**. Poultry Flock Management. CSU Small Acreage Workshop. Fort Collins, CO. 2011.

**Pabilonia K**. Raising Healthy Poultry Flocks. CSU Cooperative Extensive Live Webinar. 2011.

**Pabilonia K**. Foreign Animal Diseases. CSU/CO Dept of Agriculture training course. Fort Collins, CO. 2011.

**Spraker T**. Introduction to Wildlife Diseases. National Park Service. Fort Collins, CO. 2011.

**Van Campen H**. Diagnostics in the shelter environment. Shelter Medicine Meeting. Fort Collins, CO. 2011.

**Van Campen H**. EHV-1: How to protect your horse. Boulder Valley Eventing Assoc. Longmont, CO. 2011.

**Van Campen H**. My life as a pet detective. Mead Rotary Club. Mead, CO. 2011.

**Van Campen H**. Vaccinations for your horse. Boulder Valley Eventing Assoc. Longmont, CO. 2011.

## ON-GOING FUNDED CONTRACTS AND GRANTS, 2011

**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*

- 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 (PhD)

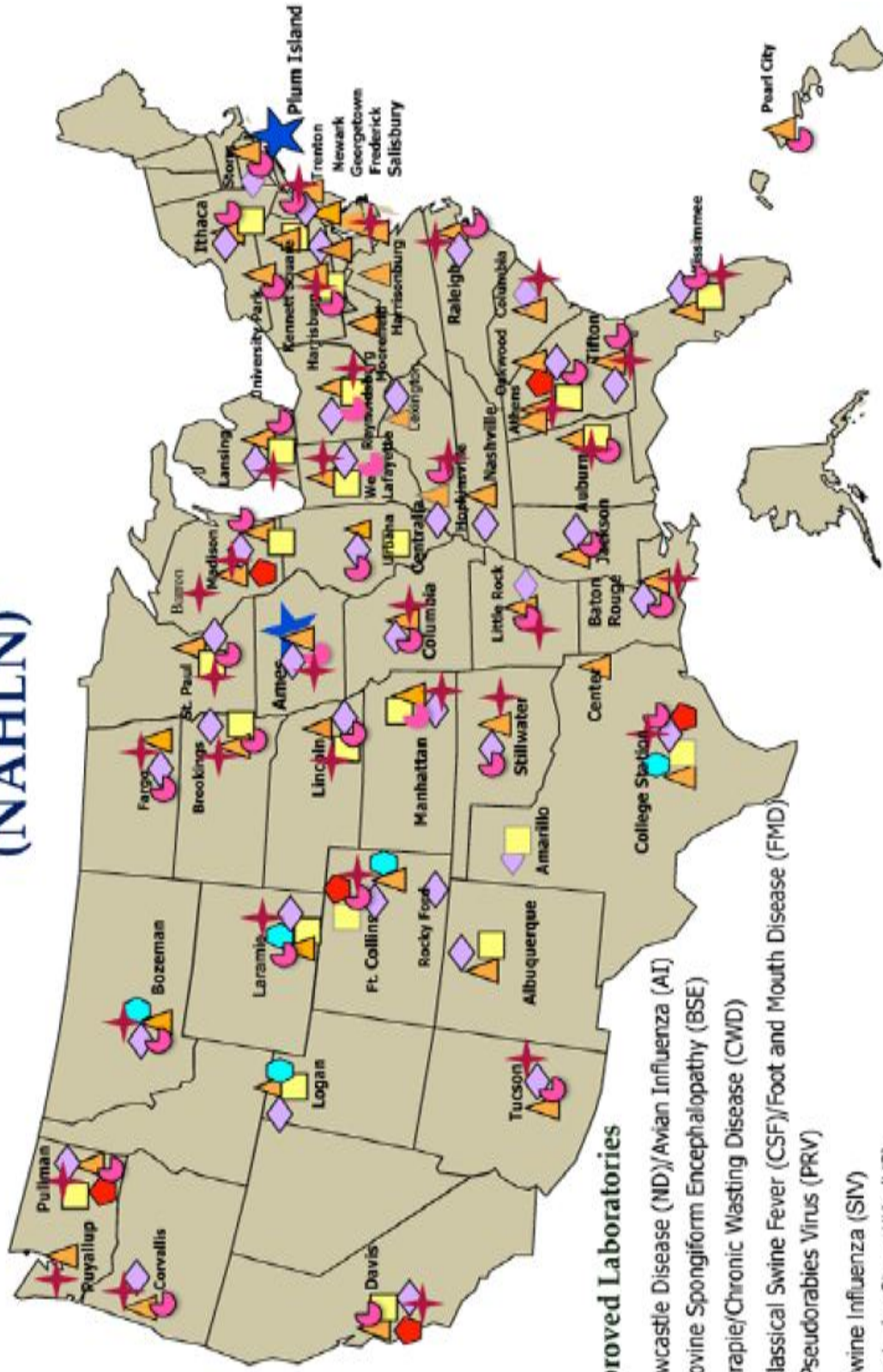
### *Wildlife and Epidemiology*

- 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
- 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
- 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)









## 2011 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
<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
Brucellosis	Card Test	Fort Collins Bacteriology	CO Dept. of Ag
Brucellosis	Card 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
<i>Mycobacterium avium</i> . subsp. Paratuberculosis	Solid Media	Fort Collins Bacteriology	NVSL
<i>M. avium paraTB</i> (Johne's)	Direct PCR from feces	FC Bacteriology/Rocky Ford	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
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
<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)



## Approved Laboratories

-  Newcastle Disease (ND)/Avian Influenza (AI)
-  \*Bovine Spongiform Encephalopathy (BSE)
-  Scrapie/Chronic Wasting Disease (CWD)
-  \*Classical Swine Fever (CSF)/Foot and Mouth Disease (FMD)
-  \*Pseudorabies Virus (PRV)
-  Swine Influenza (SIV)
-  Vesicular Stomatitis (VS)
-  National Veterinary Services Laboratories

\*For specified agents, not all laboratories are currently participating in surveillance testing.

Insert colored page to show  
separation of the two sections of  
report

**COLORADO STATE UNIVERSITY  
VETERINARY DIAGNOSTIC LABORATORY  
2010-11 ACCESSION STATISTICS**

**FORT COLLINS**

	10-11	09-10	08-09	07-08	06-07	05-06	04-05
<b>Accessions</b>	86,202	108,938	100,624	111,123	131,750	209,952	197,256
<b>Animals</b>	NA	158,759	151,,372	161,213	152,965	266,791	254,087
<b>Tests Performed</b>	330,372	339,123	314,507	319,930	341,400	372,231	345,102

**BY SECTION**

	10-11	09-10	08-09	07-08	06-07	05-06	04-05
<b>Administrative</b>	7,386	45,903	44,838	46,148	41,006	40,889	42,344
<b>Avian</b>	6,140	6,234	5,067	6,935	5,497	4,275	
<b>Bacteriology</b>	29,138	19,464	19,169	17,368	17,665	17,533	17,353
<b>Bacti-Serology</b>	Combined with bacti	6,527	10,591	10,671	11,965	15,514	15,396
<b>BSL3</b>	3,990	10,698	445				
<b>Chemistry</b>	4,919	8,515	7,984	7,849	8,038	10,564	11,383
<b>Clinical Path</b>	8,244	9,314	9,392	9,106	9,158	9,161	7,971
<b>Endocrinology</b>	2,680	3,218	2,843	2,762	2,742	2,769	2,875
<b>Food Safety</b>	Combined with bacti	1,246	2,284	2,699	4,016	4,585	3,288
<b>Histology</b>	155,159	85,900	76,570	75,210	76,159	10,800	5,782
<b>M. Diagnostics</b>	4,088	2,555	3,398	3,571	4,574	4,531	
<b>Necropsy</b>	1,762	1,678	1,543	1,609	1,526	1,567	
<b>Pathology</b>	32,001	37,527	35,746	38,149	41,441	35,206	35,041
<b>Parasitology</b>	8,435	6,524	7,876	7,289	5,132	6,852	5,161
<b>Special Sero</b>	9,026	14,441	13,989	14,853	14,852	13,904	13,858
<b>TSE</b>	20,192	33,976	25,078	30,440	50,106	135,206	124,572
<b>Virology</b>	37,212	4,286	4,328	5,140	6,762	14,288	23,053
<b>Viro Serology</b>	Combined with viro	40,732	43,366	39,209	40,625	44,577	37,025

This represents a 20.9% decrease in accessions and a 2.6% decrease in the number of tests performed compared to the previous year. Bacteriology, Molecular Diagnostics, Parasitology and Histology showed the largest increases while other areas stayed the same or decreased. The large increase in Histology reflects better accounting techniques. The decrease in Administrative tests reflect a change in tabulating these procedures as invoice items rather than tests and accounts for the majority of the decrease in number of tests.



## ROCKY FORD

	10-11	09-10	08-09	07-08	06-07	05-06	04-05
<b>Accessions</b>	12,948	13,808	13,248	13,461	10,483	10,801	10,496
<b>Animals</b>	NA	82,909	111,150	102,111	118,594	101,646	33,515
<b>Tests Performed</b>	<b>107,971</b>	<b>92,219</b>	<b>122,581</b>	<b>112,542</b>	<b>125,328</b>	<b>108,970</b>	<b>40,163</b>

### *BY SECTION*

	10-11	09-10	08-09	07-08	06-07	05-06	04-05
<b>Administrative</b>	15,504	3,634	4,024	4,363	3,648	1,951	1,174
<b>Bacteriology</b>	3,213	1,731	1,483	1,438	1,461	1,788	1,570
<b>Bacti-Serology</b>	Combined with bacti	630	762	2,199	1,723	2,227	1,355
<b>Chemistry</b>	560	895	740	817	809	887	913
<b>Clin Path</b>	585	746	738	805	799	872	824
<b>Endocrinology</b>	146	242	251	346	336	285	346
<b>Histology</b>	16	1	68	30	5	4	32
<b>Pathology</b>	593	356	423	479	424	524	1,897
<b>Parasitology</b>	17,006	16,839	19,635	19,227	3,872	3,882	1,807
<b>Virology</b>	70,348	57,475	78,403	73,470	98,627	84,407	13,912
<b>Viro-Serology</b>	Combined with viro	9,670	16,054	9,368	13,678	12,127	16,333

This represents a 6.2% decrease in number of accessions and a 17.1% increase in number of tests performed compared to the previous year. The increases were in Administration, Bacteriology, Pathology, Parasitology and Virology. Increase in Administrative tests were largely related to media and supply preparations.

## WESTERN SLOPE

	10-11	09-10	08-09	07-08	06-07	05-06	04-05
<b>Accessions</b>	3,195	3,608	3,528	3,799	3,479	2,728	2,715
<b>Animals</b>	NA	20,770	16,879	16,366	16,395	15,208	14,945
<b>Tests Performed</b>	<b>19,488</b>	<b>24,073</b>	<b>20,408</b>	<b>19,585</b>	<b>19,131</b>	<b>17,822</b>	<b>16,672</b>

### BY SECTION

	10-11	09-10	08-09	07-08	06-07	05-06	04-05
<b>Administrative</b>	1,981	3,736	2,147	1,523	1,91	777	864
<b>Bacteriology</b>	11,288	1,448	1,292	1,410	1,266	674	492
<b>Bacti-Serology</b>	Combined w/bacti	11,458	8,765	9,119	9,446	9,322	8,935
<b>Chemistry</b>	2	153	187	123	102	14	27
<b>Clinical Path</b>	109	138	104	4	1		0
<b>Endocrinology</b>	2	7	5	4			0
<b>M. Diagnostics</b>	2	244	234				
<b>Pathology</b>	918	918	1,005	1,071	774	219	256
<b>Parasitology</b>	2,961	3,120	3,453	2,988	2,894	2,740	2,807
<b>Virology</b>	2,225	487	567	469	554	371	333
<b>Viro-Serology</b>	Combined w/virology	2,351	2,619	2,874	2,903	3,705	2,958

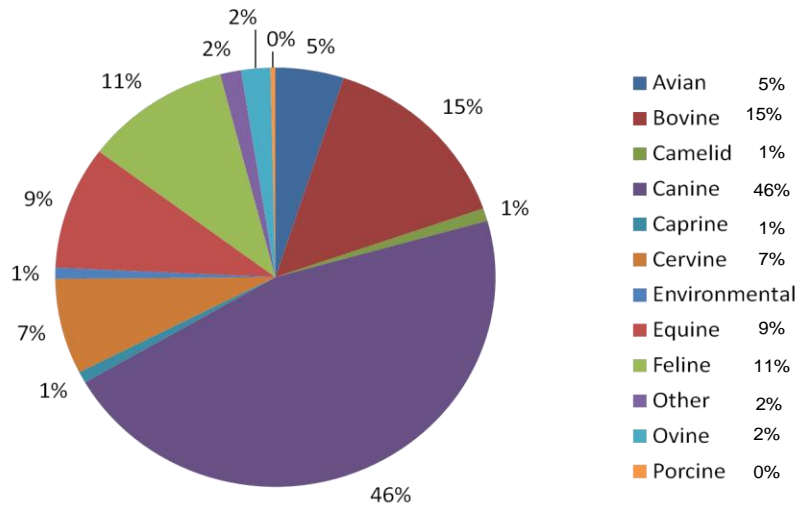
This represents a 11.4% decrease in accession and a 19.0% decrease in number of tests performed compared to the previous year. Some of the decreases are related to some tests being counted under Fort Collins.

## ALL LABS

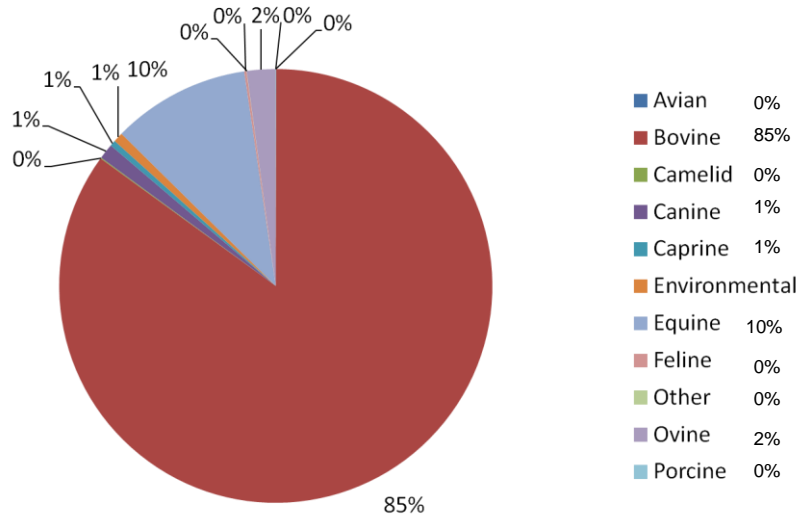
	10-11	09-10	08-09	07-08	06-07	05-06	04-05
<b>Accessions</b>	102,345	126,354	117,400	128,383	145,712	223,481	210,467
<b>Animals</b>	NA	262,438	279,401	279,690	287,954	383,645	302,547
<b>Tests Performed</b>	457,831	455,415	457,976	452,057	485,769	499,023	401,937

This represents a 19.0% decrease in accession and a 0.5% decrease in number of tests performed compared to the previous year. A large portion of the decrease in accessions is related to administrative tests being counted as invoice items rather than accessions.

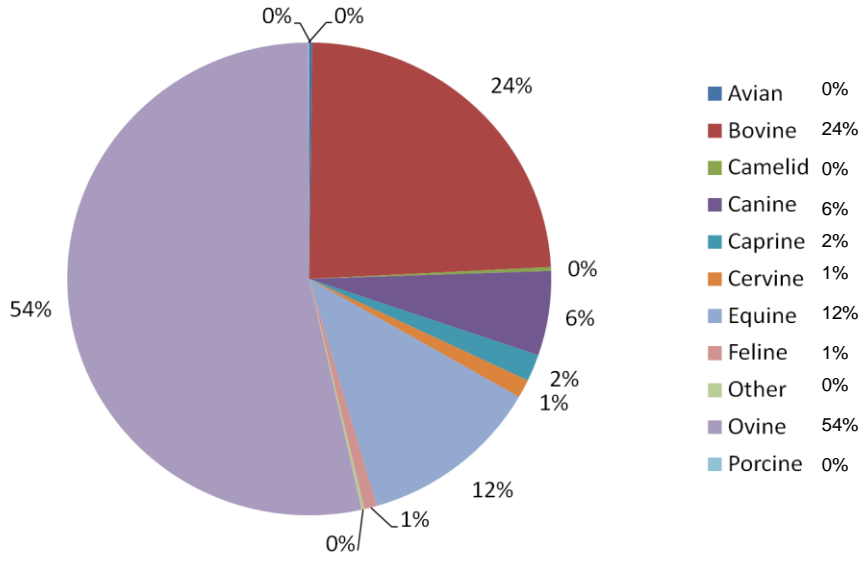
**Fort Collins Species**  
7/1/2010 – 6/30/2011



**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 10/11 compared to fiscal year 09/10. Cases from the VTH increased by 96 (12.5%), while cases from the state and region decreased by 80 (-8.2%).

### NECROPSY

Species	VTH 7/10-6/11	State/Region 7/10-6/11	TOTAL 7/10-6/11	TOTAL 7/09-6/10	% Change
Bovine	66	70	136	133	2.3
Equine	132	41	173	181	-4.4
Porcine	1	8	9	6	50.0
Ovine/Caprine	50	37	87	69	26.1
OLA*/OSA*	21	20	41	126	-67.5
Canine	412	396	808	774	4.4
Feline	112	121	233	209	11.5
Avian	18	68	86	131	-34.4
Wildlife/ Exotics	51	138	189	117	61.5
<b>TOTAL</b>	<b>863</b>	<b>899</b>	<b>1,762</b>	<b>1,746</b>	<b>0.9</b>

\*OLA = Other Large Animal

\*OSA = Other Small Animal

### TRANSMISSIBLE SPONGIFORM ENCEPHALOPATHY TESTING

Test	# Tests 7/10-6/11	# Samples 7/10-6/11	# Samples Positive	Number 7/09-6/10	% Change
Captive Elk Surveillance	2,169	2,268	6	2,682	-15.4
CWD Surveillance	1,795	2,378	391	769	209.2
CWD—ELISA CO & Others*	7,728	7,728	102	7,710	0.2
USDA TSE	2,209	3,780	1	10,662	-64.5
USDA BSE	6,291	6,291	0	12,942	-51.4
<b>TOTAL</b>	<b>20,192</b>	<b>22,445</b>	<b>500</b>	<b>34,765</b>	<b>-35.4</b>

\*2,691 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 10/11 from fiscal year 09/10. The bottom table indicates the number of specific diagnoses or causative agents identified for abortions in fiscal year 10/11. The last column of the bottom table indicates the number and percentage of abortions with undetermined cause.

### ABORTION SCREENS

Species	Number 7/10-6/11	%	Number 7/09-6/10	% Change
<b>Bovine</b>	45	60.0	46	-2.2
<b>Equine</b>	1	1.3	11	-90.9
<b>Porcine</b>	1	1.3	0	100.0
<b>Ovine</b>	11	14.7	9	22.2
<b>Caprine</b>	6	8.0	6	0.0
<b>Camelid</b>	1	1.3	2	-50.0
<b>Other</b>	10	13.3	4	150.0
<b>TOTAL</b>	<b>75</b>	<b>100.0</b>	<b>78</b>	<b>-3.8</b>

Species	Number Examined	Viral (%)	Bacterial (%)	Other (%)	Undeter- Mined(%)
<b>Bovine</b>	45	11(24.4) <sup>a</sup>	6(13.3)	6(13.3) <sup>b</sup>	22(48.9)
<b>Equine</b>	1	0(0.0)	0(0.0)	0(0.0)	1(100.0)
<b>Porcine</b>	1	0(0.0)	0(0.0)	0(0.0)	1(100.0)
<b>Ovine</b>	11	0(0.0)	7(63.6) <sup>c</sup>	0(0.0)	4(36.4)
<b>Caprine</b>	6	0(0.0)	1(16.7)	0(0.0)	5(83.3)
<b>Camelid</b>	1	0(0.0)	0(0.0)	0(0.0)	1(100.0)
<b>TOTAL</b>	<b>65</b>	<b>11(16.9)</b>	<b>14(21.5)</b>	<b>6(9.2)</b>	<b>34(52.3)</b>

<sup>a</sup>9 with IBR, 9 with BVD (7 both IBR and BVD)

<sup>b</sup>High ocular nitrates (3), congenital abnormalities (3)

<sup>c</sup>1 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 10/11 compared to fiscal year 09/10. 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 7/10-6/11	%	Number 7/09-6/10	% Change
<b>Bovine</b>	99	51.0	53	86.8
<b>Equine</b>	11	5.7	1	1,000.0
<b>Porcine</b>	3	1.5	0	100.0
<b>Ovine/Caprine</b>	7	3.6	4	75.0
<b>Canine</b>	46	23.7	26	76.9
<b>Feline</b>	18	9.3	12	50.0
<b>Cervids</b>	3	1.5	0	100.0
<b>Other</b>	7	3.6	4	75.0
<b>TOTAL</b>	<b>194</b>	<b>100.0</b>	<b>100</b>	<b>94.0</b>

Species	Rota	Corona	E. coli	Salmonella	Clostridia	Cryptosporidia	Other	Undetermined
<b>Bovine</b>	23/99 (23.2)	10/99 (10.1)	19/99 (19.2)	6/99 (6.1)	25/99 (25.3)	36/99 (36.4)	10/99 <sup>a</sup> (10.1)	14/99 (14.1)
<b>Equine</b>	2/11 (18.2)	0/11 (0.0)	1/11 (9.1)	0/11 (0.0)	1/11 (9.1)	0/11 (0.0)	1/11 <sup>b</sup> (9.1)	7/11 (63.6)
<b>Ovine/ Caprine</b>	1/7 (14.3)	0/7 (0.0)	3/7 (42.9)	0/7 (0.0)	0/7 (0.0)	1/7 (14.3)	3/7 <sup>c</sup> (42.9)	0/7 (0.0)
<b>Camelid</b>	0/4 (0.0)	2/4 (50.0)	1/4 (25.0)	0/4 (0.0)	1/4 (25.0)	1/4 (25.0)	1/4 <sup>c</sup> (26.0)	0/4 (0.0)
<b>Canine</b>	0/46 (0.0)	0/46 (0.0)	2/46 (4.3)	1/46 (2.2)	6/46 (13.0)	3/46 (6.5)	18/46 <sup>d</sup> (39.1)	19/46 (41.3)
<b>TOTAL</b>	<b>26/167 (15.6)</b>	<b>12/167 (7.2)</b>	<b>26/167 (15.6)</b>	<b>7/167 (4.2)</b>	<b>33/167 (19.8)</b>	<b>41/167 (24.6)</b>	<b>33/167 (19.8)</b>	<b>40/167 (24.0)</b>

<sup>a</sup>Coccidia (7) or Johnes (2) or BVD (1)

<sup>b</sup>Strongyles

<sup>c</sup>Coccidia

<sup>d</sup>Parvovirus (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 10/11 compared to fiscal year 09/10. The VTH cases decreased by 51 cases (-3.9%) while the state/country cases decreased by 1,078 cases (-3.5%). The bottom table indicates the number and percentage of certain diagnoses given for both the VTH and state/country.

### BIOPSY

<b>SPECIES</b>	<b>VTH 7/10-6/11</b>	<b>State/Country 7/10-6/11</b>	<b>Total 7/10-6/11</b>	<b>Total 7/09-6/10</b>	<b>% Change</b>
<b>Canine</b>	1,053	24,400	25,453	25,747	-1.1
<b>Feline</b>	100	3,927	4,027	4,491	-10.3
<b>Other</b>	12	302	314	207	51.7
<b>Avian</b>	9	36	45	49	-8.2
<b>Equine</b>	59	579	638	672	-5.1
<b>Bovine</b>	2	178	180	232	-22.4
<b>Porcine</b>	0	2	2	2	0.0
<b>Ovine/Caprine</b>	5	50	55	54	1.9
<b>Camelid/Cervine</b>	2	88	90	479	-81.2
<b>TOTAL</b>	<b>1,242</b>	<b>29,562</b>	<b>30,804</b>	<b>31,933</b>	<b>-3.5</b>

\*Of this total, 371 were 2<sup>nd</sup> opinion consultations from outside the Laboratory, and 176 were dermatology-specific cases.

<b>Diagnosis</b>	<b>VTH (%)</b>	<b>State/Country (%)</b>	<b>TOTAL (%)</b>
<b>Benign Tumor</b>	242(26.5)	9,109(33.9)	9,351(33.7)
<b>Sarcoma</b>	323(35.3)	8,090(30.1)	8,413(30.3)*
<b>Carcinoma</b>	113(12.4)	3,368(12.5)	3,481(12.5)
<b>Skin Disease</b>	78(8.5)	2,319(8.6)	2,397(8.6)
<b>Liver Disease</b>	91(10.0)	2,131(7.9)	2,222(8.0)
<b>GI Disease</b>	67(7.3)	1,850(6.9)	1,917(6.9)

\*2,586 (9.3%) of these were mast cell tumors.

- There were 237 biopsies referred from the Rocky Ford Branch Laboratory in fiscal year 10/11 compared to 238 in fiscal year 09/10. These were mostly canine, feline or equine.



## UTERINE BIOPSIES

The top table indicates the number of uterine biopsies for the last two fiscal years, and the percent change of fiscal year 10/11 compared to fiscal year 09/10. The bottom table indicates the distribution and percentages of the different grades given to the uterine biopsies.

Species	Number 7/10-6/11	%	Number 7/09-6/10	% Change
Equine	530	99.8	571	-7.2
Other	1	0.2	3	-66.7
<b>TOTAL</b>	<b>531</b>	<b>100.0</b>	<b>574</b>	<b>-7.5</b>

Grade	Number	%
1A	125	23.5
1B	196	36.9
2A	87	16.4
2B	105	19.8
3A	16	3.0
3B	0	0.0
NA/Unknown	2	0.4

## 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). Routine special stains could not be counted due to changes in the LIMS.

Procedure	Number 7/10-6/11	%	Number 7/09-6/10	% Change
H&E Slides/Biopsy & Necropsy	142,685	91.9	70,075	103.6
H&E Slides/Research	7,173	4.6	12,739	-43.7
Special Stains (estimated)	2,600	1.7	1,899	36.9
IHC Stains		% of IHC		
Actin	53	2.0	NA	NA
BVD	69	2.6	56	23.2
CD3/CD79a	939	34.8	209	349.3
CD18	359	13.3	170	111.2
c-Kit	89	3.3	64	39.1
Chromagranin	93	3.4	19	389.5
Cytokeratin	255	9.4	87	193.1
Desmin	127	4.7	40	217.5
FIP	113	4.2	19	494.7
Factor 8	93	3.4	30	210.0
Leptospirosis	8	0.3	5	60.0
Melan A	122	4.5	62	96.8
MUM-1	6	0.2	NA	NA
Neospora	37	1.4	1	3,600.0
Synaptophysin	86	3.2	16	437.5
Vimentin	226	8.4	71	218.3
Other	26	1.0	25	4.0
Subtotal IHC	2,701		874	209.0
<b>TOTAL</b>	<b>155,159</b>	<b>100.0</b>	<b>85,587</b>	<b>81.3</b>

## 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 10/11 is compared to the total number of tests performed in fiscal year 09/10. The last column is the percent change between the fiscal years.

Test	Number 7/10-6/11	Number Positive %	Number 7/09-6/10	% Change
Aerobic Culture	5,631	NA	5,602	0.5
Aerobic & Anaerobic Culture	1,525	NA	1,686	-9.5
Fecal Culture	2,371	NA	2,947	-19.5
Clostridial Fecal Culture	246	156(63.4)	233	5.6
PCR Clostridial Genotype	46	46(100.0) <sup>a</sup>	17	170.6
Clostridial perfringens/ difficile Toxin	97	8(8.2)	99	-2.0
PCR <i>E. coli</i> multiplex	11	6(54.5)	6	83.3
Mycobacterial Culture/PCR	86	13(15.1)	87	-1.1
Blood Culture	61	NA	92	-33.7
Campylobacter Culture	371	0(0.0)	427	-13.1
Mycoplasma Culture	381	102(26.8)	282	35.1
CEM Culture	235	0(0.0)	213	10.3
Fungal Culture	429	112(26.1)	523	-18.0
PCR Leptospirosis	126	12(9.5)	109	15.6
Antimicrobial Susceptibility	5,457	NA	6,209	-12.1
Environmental Culture	1,360	265(19.5)	1,255	8.4
Plate Counts	38	NA	15	153.3
MRSA Culture	13	3(23.1)	821	-98.4
Biolog Bacti ID	35	NA	NA	NA
<b>TOTAL</b>	<b>18,519</b>	<b>NA</b>	<b>20,623</b>	<b>-10.2</b>

<sup>a</sup>45 type A, 1 type Beta

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 7/10-6/11	%
<b>Bovine</b>	616	67	573	129	40	4	1,429	13.5
<b>Equine</b>	904	171	1,321	37	0	141	2,574	24.3
<b>Porcine</b>	14	2	16	4	0	0	36	0.3
<b>Ovine/ Caprine</b>	118	24	184	20	8	3	357	3.4
<b>Camelid</b>	19	13	68	4	0	0	104	1.0
<b>Canine</b>	2,591	1,075	134	32	225	170	4,227	39.9
<b>Feline</b>	857	110	39	11	100	87	1,204	11.4
<b>Avian</b>	24	7	7	2	1	6	47	0.4
<b>Cervine</b>	88	34	4	5	0	0	131	1.2
<b>Non-Animal</b>	115	1	0	0	0	2	118	1.1
<b>Other</b>	285	21	25	2	7	16	356	3.4
<b>TOTAL</b>	<b>5,631</b>	<b>1,525</b>	<b>2,371</b>	<b>246</b>	<b>381</b>	<b>429</b>	<b>10,583</b>	<b>100.0</b>

The table below lists the serology tests performed in the bacteriology section with the number of tests performed in fiscal year 10/11 compared to the number of tests performed in fiscal year 09/10. 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 7/10-6/11	Positive (%)	Number 7/09-6/10	% Change
<b>Mycobacterium paratuberculosis (ELISA)</b>	2,897	Suspect-4(0.1) Low pos-20(0.7) Pos-48(1.8) Strong Pos-5(0.2)	4,808	-43.0
<b>M. paratuberculosis AGID</b>	159	16(10.1)	104	52.9
<b>Brucella abortus</b>	309	0(0.0)	332	-6.9
<b>Brucella canis</b>	84	0(0.0)	113	-25.7
<b>Leptospirosis (5 serovars)</b>	1100x5=5,500 <sup>a</sup>	773(14.1)	798x5=3,990	37.8
<b>Lepto Bratislava</b>	169	5(3.0)	108	56.5
<b>Fungal Panel</b>	68	NA	112	-39.3
<b>Aspergillosis</b>	74	1(1.4)	136	-45.6
<b>Blastomycosis</b>	70	0(0.0)	113	-38.1
<b>Coccidiomycosis</b>	95	17(17.9)	145	-34.5
<b>Histoplasmosis</b>	70	0(0.0)	114	-38.6
<b>Cryptococcus</b>	180	6(3.3)	199	-9.5
<b>IgG Estimate</b>	13	NA(-)	14	-7.1
<b>IgG Quantitation</b>	262	NA(-)	249	5.2
<b>IgA&amp;IgM Quantitation</b>	273	NA(-)	289	-5.5
<b>Protein Electrophoresis</b>	80	NA(-)	141	-43.3
<b>Immunofixation</b>	17	NA(-)	52	-67.3
<b>ANA Titer</b>	30	1(3.3)	23	30.4
<b>TOTAL</b>	<b>10,282</b>	<b>--</b>	<b>11,042</b>	<b>-6.9</b>

<sup>a</sup> 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 7/10-6/11	Number 7/09-6/10	% Change
Milk Culture	44	252	-82.5
Mycoplasma screen	20*	101	-80.2
Milk Mycoplasma Culture/PCR	87	12	625.0
Milk Culture Screen	346	554	-37.5
Aerobic feed culture	0	243	-100.0
<b>TOTALS</b>	<b>497</b>	<b>1,162</b>	<b>-57.2</b>

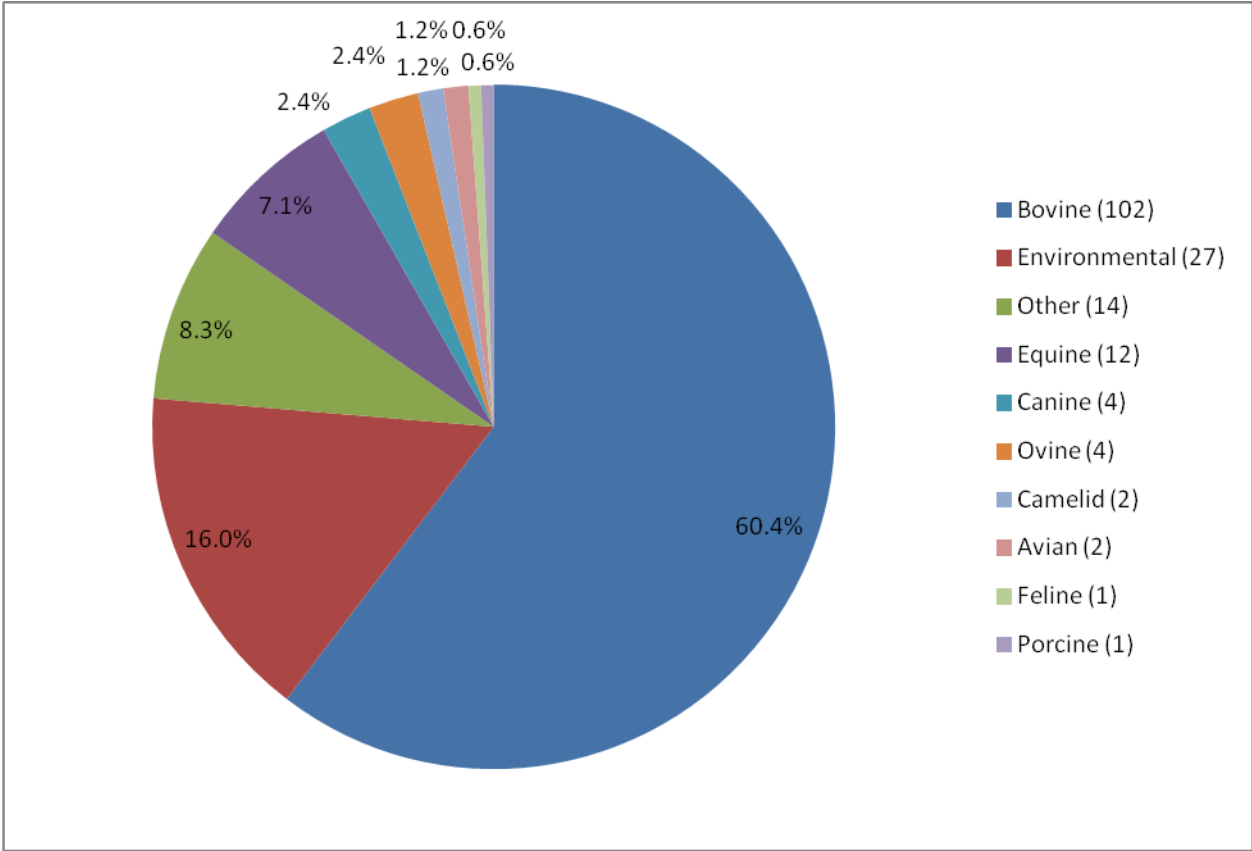
\*2 positive

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

		:1,5,7, Give, 9,12:nonmotile, Dublin, Untypable, 4,12:I,-, <b>Enteritidis</b> , Johannesburg, <b>Putten</b> , Schwarzengrund, <b>Heidelberg</b> , <b>Agona</b> , <b>Anatum</b> , <b>Lille</b> , <b>Kiambu</b> , <b>Hartford</b> , <b>Saintpaul</b> , <b>Braenderup</b> , <b>Lexington</b> , <b>Thompson</b> , <b>Ohio</b>
New World Camelid	6	Dublin, Sandiego, Typhimurium
Ovine	2 [1]	<b>Dublin</b> , Serotype III 61,-:1,5,7
Zoo (Seal lions)	79 [28] {1} (0) [11]	Montevideo, <b>Newport</b> , Typhimurium, Reading, Saintpaul, <b>Muenster</b>
Porcine	0 [3] [13]	<b>Choleraesuis</b>
Other small animal (fox), [guinea pig]	1 [1]	<b>Enteritidis</b>
Cervidae	[2]	<b>Typhimurium var 5-</b>
LAR (mouse)	[1]	<b>4,12:I;-</b>

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 1<sup>st</sup> 2010 and June 30<sup>th</sup> 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 1<sup>st</sup> 2010 to June 30<sup>th</sup> 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 1<sup>st</sup> 2009 to June 30<sup>th</sup> 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.

## 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 10/11 compared to fiscal year 09/10. The middle column of some tables indicate the number (and percentage) of positive tests.

### BOVINE VIRAL DIAGNOSTICS

Virus Name	Test Performed	Number 7/10-6/11	Number Positive	Number 7/09-6/10	% Change
BVDV	VI/VI ELISA	151	1(0.7)	194	-22.2
BVDV	PCR	417	6(1.4)	134	211.2
BVDV	IHC	69	0(0.0)	203	-66.0
BVDV	FA	423	62(14.7)	510	-17.1
BVDV	Capture ELISA	1,195	8(0.7)	1,072	11.5
IBRV	VI	151	0(0.0)	194	-22.2
IBRV	FA	324	71(21.9)	465	-30.3
BHV	PCR	406	8(2.0)	211	92.4
BRSV	VI	151	0(0.0)	194	-22.2
BRSV	PCR	7	0(0.0)	8	-12.5
BRSV	FA	58	2(3.4)	131	-55.7
PI3	VI	151	0(0.0)	194	-22.2
PI3	FA	56	0(0.0)	99	-43.4
Coronavirus	FA	180	15(8.3)	179	0.06
Rotavirus	ELISA	201	67(33.3)	177	13.6
Chlamydia	PCR	3	0(0.0)	12	-75.0
Bluetongue	PCR	366	0(0.0)	131	179.4
Mycoplasma	PCR	22	7(31.8)	33	-33.3
OHV-2	PCR	14	5(35.7)	10	40.0
BLV	PCR	33	3(1.0)	30	10.0
<b>TOTALS</b>		<b>3,925</b>	<b>--</b>	<b>3,599</b>	<b>9.1</b>

### BOVINE VIRAL SEROLOGY

Virus Name	Test Performed	Number 7/10-6/11	Number 7/09-6/10	% Change
BVD-I	SN	666	2,461	-72.9
BVD-II	SN	666	2,442	-72.7
BRSV	SN	227	1,943	-88.3
IBR	SN	484	2,165	-77.6
PI-3	SN	116	1,940	-94.0
VSV (2 strains)	SN	222	128	73.4
BLV	AGID	1,660 <sup>a</sup>	675	145.9
BT	AGID	929 <sup>b</sup>	665	39.7
<b>TOTALS</b>		<b>4,970</b>	<b>12,419</b>	<b>-60.0</b>

<sup>a</sup>206/1660(12.4%) positive

<sup>b</sup>89/929(9.6%) positive

### EQUINE VIRAL DIAGNOSTICS

Virus Name	Test Performed	Number 7/10-6/11	Number Positive(%)	Number 7/09-6/10	% Change
<b>EHV-1</b>	VI	12	1(8.3)	8	50.0
<b>EHV-1</b>	FA	4	0(0.0)	7	-42.9
<b>EHV-1/-4</b>	PCR	271	17(6.3)	115	135.7
<b>Influenza</b>	PCR	27	3(11.1)	46	-41.3
<b>West Nile</b>	PCR	0	0(0.0)	6	-100.0
<b>EVA</b>	PCR	17	0(0.0)	18	-5.6
<b>Rotavirus</b>	ELISA	12	2(16.7)	6	100.0
<b>TOTALS</b>		<b>343</b>	<b>--</b>	<b>206</b>	<b>66.5</b>

### EQUINE VIRAL SEROLOGY

Virus Name	Test Performed	Number 7/10-6/11	Number 7/09-6/10	% Change
<b>EHV-1</b>	SN	241	198	21.7
<b>EHV-4,EHV-3</b>	SN	170	57	198.2
<b>EVA</b>	SN	1,703 <sup>a</sup>	5,354	-68.2
<b>Influenza/A1&amp;A2</b>	HI	136	138	-1.4
<b>EIA</b>	AGID or ELISA	4,684 <sup>b</sup>	4,680	0.0
<b>VSV</b>	SN(2 strains)	76	66	15.2
<b>West Nile</b>	IgM ELISA	89 <sup>c</sup>	137	-35.0
<b>TOTALS</b>		<b>7,099</b>	<b>10,630</b>	<b>-33.2</b>

<sup>a</sup>93/1,703(5.5%) positive

<sup>b</sup>Zero positive

<sup>c</sup>9/89(10.1%) positive

### PORCINE VIRAL DIAGNOSTICS

Virus Name	Test Performed	Number 7/10-6/11	Number Positive (%)	Number 7/09-6/10	% Change
<b>Influenza</b>	PCR	0	0(0.0)	0	0.0
<b>Mycoplasma</b>	PCR	0	0(0.0)	2	-100.0
<b>Rotavirus</b>	ELISA	4	1(25.0)	6	-33.3
<b>PRV/PRRS</b>	VI	0	0(0.0)	1	-100.0
<b>PRRS</b>	PCR	4	0(0.0)	7	-42.9
<b>TGE</b>	FA	1	0(0.0)	5	-80.0
<b>TOTALS</b>		<b>9</b>		<b>21</b>	<b>-57.1</b>



## OVINE/CAPRINE/LLAMA/CERVID VIRAL DIAGNOSTICS

Virus Name	Test Performed	Number 7/10-6/11	Number Positive(%)	Number 7/09-6/10	% Change
BVDV	VI	6	0(0.0)	1	500.0
BVDV	FA/IHC	112	2(1.8)	23	387.0
BVDV	PCR	620	0(0.0)	468	32.5
BVD	SN	341	NA	285	19.6
BRSV	SN	119	NA	100	19.0
BRSV	FA/PCR	4	0(0.0)	3	33.3
IBR	FA/PCR	5	0(0.0)	21	-76.2
IBR	SN	172	NA	32	437.5
PI3	FA	2	0(0.0)	1	100.0
PI3	SN	249	NA	87	186.2
BT	AGID	186	42(22.6)	242	-23.1
BT	PCR	21	0(0.0)	32	-34.4
EHD	AGID	152	40(26.3)	35	334.3
EHD	PCR	1	1(100.0)	12	-91.7
EHV	FA/PCR	3	0(0.0)	15	-80.0
Coronavirus	FA	7	1(14.3)	7	0.0
Rotavirus	ELISA	22	4(18.2)	9	144.4
OPP	AGID	28	2(7.1)	310	-91.0
OPP	PCR	82	3(3.7)	3	2,633.3
CAE	ELISA/AGID	339	27(8.0)	473	-28.3
CAE	PCR	76	6(7.9)	65	16.9
Caprine Herpes	PCR	2	0(0.0)	2	0.0
Chlamydia	PCR	50	1(2.0)	48	4.2
Mycoplasma	PCR	14	2(14.3)	41	-65.9
OHV-2	PCR	5	1(20.0)	0	100.0
West Nile	PCR	4	1(25.0)	9	-55.6
<b>TOTAL</b>		<b>2,622</b>		<b>2,374</b>	<b>10.4</b>

## FELINE VIRAL DIAGNOSTICS

Virus Name	Test Performed	Number 7/10-6/11	Number Positive(%)	Number 7/09-6/10	% Change
FHV-1	PCR	201	19(9.5)	242	-16.9
FHV-1	VI	27	2(7.4)	0	100.0
Calicivirus	PCR	67	7(10.4)	80	-16.3
FPV	SNAP/PCR	24	8(33.3)	38	-36.8
FeLV	ELISA	85	2(2.4)	73	16.4
FIV	ELISA	84	4(4.8)	73	15.1
FIV	PCR	12	3(25.0)	28	-57.1
Chlamydia	PCR	151	26(17.2)	201	-24.9
Mycoplasma	PCR	65	17(26.2)	75	-13.3
Corona/FIP	PCR	36	3(8.3)	39	-7.7
<b>TOTALS</b>		<b>752</b>	<b>--</b>	<b>849</b>	<b>-11.4</b>

### FELINE VIRAL SEROLOGY

Virus Name	Test Performed	Number 7/10-6/11	Number 7/09-6/10	% Change
<b>FIP</b>	IFA	121	114	6.1
<b>FCV</b>	SN	590	593	-0.5
<b>FHV</b>	SN	606	621	-2.4
<b>FPV</b>	HI	1,415	1,069	32.4
<b>TOTALS</b>		<b>2,732</b>	<b>2,397</b>	<b>14.0</b>

### CANINE VIRAL DIAGNOSTICS

Virus Name	Test Performed	Number 7/10-6/11	Number Positive (%)	Number 7/09-6/10	% Change
<b>CDV</b>	FA	94*	21(22.3)	172	-45.3
<b>CDV</b>	PCR	173*	37(21.4)	216	-19.9
<b>CCV</b>	FA	50	0(0.0)	14	257.1
<b>CPV</b>	FA/SNAP/PCR	71	18(25.4)	92	-22.8
<b>CHV</b>	VI	0	0(0.0)	12	-100.0
<b>CHV</b>	FA/PCR	21	1(4.8)	23	-8.7
<b>ICH</b>	PCR	10	2(20.0)	24	-58.3
<b>Influenza</b>	PCR	21	0(0.0)	43	-51.2
<b>Mycoplasma</b>	PCR	51	18(35.3)	55	-67.3
<b>TOTALS</b>		<b>491</b>	<b>--</b>	<b>651</b>	<b>-24.6</b>

\*81 are raccoons or other exotics/wildlife, 20(24.7%) positive.

### CANINE VIRAL SEROLOGY

Virus Name	Test Performed	Number 7/10-6/11	Number 7/09-6/10	% Change
<b>CDV</b>	SN	8,538	6,991	22.1
<b>CDV IgG/IgM</b>	IFA	269	314	-14.3
<b>CHV</b>	SN	59	93	-36.6
<b>CPV</b>	HI	8,072	6,658	21.2
<b>Influenza</b>	HI	38	31	22.6
<b>TOTALS</b>		<b>16,976</b>	<b>14,087</b>	<b>20.5</b>

## RABIES TESTING

Species	Number 7/10-6/11	Number Positive	Number 7/09-6/10
Bat	59	7	88
Bovine/Llama/Caprine/Ovine	27	0	25
Canine	137	0	91
Coyote/Fox	9	0	31
Deer/Elk	2	0	6
Equine/Burro	25	0	37
Feline	100	0	79
Lynx/Mt Lion	3	0	32
Bear	8	0	10
Rabbit/Rodent/Unknown	12	1	8
Raccoon	22	0	15
Skunk	22	2	44
<b>TOTALS</b>	<b>426</b>	<b>10</b>	<b>466</b>

## 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 10/11 compared to fiscal year 09/10. The middle column indicates the number (and percent) of positive tests. Necropsy is also listed in Pathology.

Agent Name	Test Performed	Number 7/10-6/11	Number Positive (%)	Number 7/09-6/10	% Change
Influenza	AGID/HI	1,235	NA	1,208	2.2
Influenza	PCR	1,444	NA	1,523	-5.2
Any	VI	258	NA	30	760.0
Infectious Bronchitis	ELISA	26	25(96.2)	40	-35.0
West Nile	PCR	5	0(0.0)	9	-44.4
APMV-1	PCR	5	1(20.0)	9	-44.4
Chlamydia	PCR	12	0(0.0)	20	-40.0
Mycoplasma (MG/MS)	PCR	68	24(35.3)	24	183.3
Mycoplasma	Serology	34	1(2.9)	24	41.7
Pullorum/ Typhoid	Serology	2,481	NA	2,762	-10.2
Salmonella Mortality/Envir- omental	Culture	483	NA	364	32.7
Newcastle Disease	Serology	1	0(0.0)	33	-96.9
Any	Necropsy	88	NA	97	-9.3
<b>TOTALS</b>		<b>6,140</b>		<b>6,143</b>	<b>0.0</b>

## 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 10/11 compared to FY 09/10.

<b>Agent Name</b>	<b>Test Performed</b>	<b>Number 7/10-6/11</b>	<b>Number Positive</b>	<b>Number 7/09-6/10</b>	<b>% Change</b>
<b>Classical Swine Fever</b>	PCR	396	0(0.0)	607	-34.8
<b>H1N1 Influenza</b>	PCR	6	2(33.3)	17	-64.7
<b>Q Fever</b>	PCR	214	4(1.9)	92	132.6
<b>Piroplasmosis</b> <i>(B. caballi; T. equi)</i>	cELISA	2,597	0(0.0)	495	424.6
<b>Vesicular Stomatitis</b>	Complement fixation	10	0(0.0)	5,445	-99.9
<i>Francicella tularensis</i>	PCR	17	0(0.0)	19	-10.5
<i>Yersinia pestis</i>	PCR	23	2(8.7)	19	21.1
<i>Bacillus anthracis</i>	PCR	3	0(0.0)	1	200.0
<i>Brucella sp.</i>	PCR	2	0(0.0)	3	-33.3
<b>Pseudorabies</b>	ELISA	0	0(0.0)	3	-100.0
<b>Foot &amp; Mouth Disease</b>	PCR	550	0(0.0)	NA	100.0
<b>Rinderpest</b>	PCR	168	0(0.0)	NA	100.0
<b>TOTAL</b>		<b>3,986</b>	<b>--</b>	<b>6,701</b>	<b>-40.5</b>

## 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 10/11 compared to fiscal year 09/10.

Test	Number 7/10-6/11	% of Total	Number 7/09-6/10	% Change
<b>Trich - Culture Food Animal</b>	1,491	17.7	1,086	37.3
<b>Trich - PCR Food Animal</b>	757	9.0	301	151.5
<b>Trich - Culture Small Animal</b>	19	0.2	45	-57.8
<b>Trich - PCR Small Animal</b>	118	1.4	105	12.4
<i>Neospora</i> <b>Serology</b>	594	7.0	467	27.2
<i>Toxoplasma</i> <b>Serology</b>	288	3.4	180	60.0
<b>Knott's Test</b>	10	0.1	10	0.0
<b>Heartworm Serology</b>	378	4.5	415	-8.9
<i>Ehrlichia/Lyme/ Anaplasma</i>	471 (157 each)	5.6	613	-23.2
<b>Parasite ID</b>	41	0.5	26	57.7
<b>Fecal Exam</b>	2,577	30.6	2,082	23.8
<i>Giardia</i> <b>ELISA/IFA</b>	578	6.8	617	-6.3
<i>Cryptosporidium</i> <b>AF/IFA</b>	670	8.0	718	-6.7
<b>Baermann</b>	78	0.9	120	-35.0
<b>Fluke exam</b>	17	0.2	2	750.0
<b>Giardia PCR</b>	100	1.2	--	--
<b>Soil Analysis (includes feed, water, sediment)</b>	4	<0.1	7	-42.9
<b>Occult Blood</b>	60	0.7	--	--
<b>Strongyle Nematode &amp; Other Helminth PCR</b>	184	2.2	--	--
<b>TOTAL</b>	<b>8,435</b>	<b>100.0</b>	<b>6,794</b>	<b>23.4</b>

## 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
<b>Canine (includes wild species)</b>	23/625 (3.7)	13/625 (2.1)	10/625 (1.6)	45/625 (7.2)	2/20 (10.0)	21/625 (2.2)
<b>Feline (includes wild species)</b>	20/201 (10.0)	0/201 (0.0)	0/201 (0.0)	5/201 (2.5)	1/5 (20.0)	9/201 (4.5)
<b>Reptiles/Zoo/Other</b>	1/13 (7.7)	--	--	--	--	5/13 (38.5)

### FOOD & FIBER ANIMALS/EQUINE FECAL EXAMINATIONS

Species	Ascarids	Coccidia	Strongyles	<i>Nematodirus</i>	<i>Trichuris</i>	Tapeworms	Other	Lungworms
<b>Bovine</b>	- <sup>a</sup>	204/357 (57.1)	148/357 (41.5)	6/357 (1.7)	32/357 (9.0)	11/357 (3.1)	9/357 (2.5)	0/0 (0.0)
<b>Ovine / Caprine</b>	-	138/150 (92.0)	84/150 (56.0)	54/150 (36.0)	34/150 (22.7)	7/150 (4.7)	5/150 (3.3)	0/1 (0.0)
<b>Camelids</b>	-	138/192 (71.9)	38/192 (19.8)	81/192 (42.2)	40/192 (20.8)	8/192 (4.2)	33/192 (17.2)	--
<b>Cervids/ Wildlife/Zoo</b>	-	25/43 (58.1)	28/43 (65.1)	9/43 (20.9)	2/43 (4.7)	2/43 (4.7)	1/43 (2.3)	9/51 (17.6)
<b>Equine</b>	8/533 (1.5)	1/533 (0.2)	234/533 (43.9)	--	--	9/533 (1.7)	1/533 (0.2)	--

<sup>a</sup>dash = not applicable

## 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)
<b>Canine</b>	69/805 (8.6)	44/69 (63.8)	70/299 (23.4)	5/39 (12.8)	46/299 (15.3)
<b>Feline</b>	5/215 (2.3)	0/3 (0.0)	6/88 (6.8)	0/0 (0.0)	6/88 (6.8)
<b>Bovine/Caprine/Ovine</b>	57/463 (12.3)	- <sup>a</sup>	2/25 (8.0)	50/126 (39.7)	6/25 (24.0)
<b>Camelids</b>	6/192 (3.1)	-	1/6 (16.7)	0/0 (0.0)	2/6 (33.3)
<b>Equine</b>	0/533 (0.0)	-	0/13 (0.0)	0/1 (0.0)	0/13 (0.0)
<b>Reptiles/Zoo/Wildlife</b>	1/48 (2.1)	-	6/37 (16.2)	0/2 (0.0)	3/37 (8.1)

<sup>a</sup>dash = 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>
<b>Bovine</b>	8/1,491 (0.5)	31/757 (4.1)	19/316 (6.1)	- <sup>b</sup>	-	-	-
<b>Canine</b>	0/1 (0.0)	0/5 (0.0)	37/228 (16.2)	1/10 (10.0)	7/321 (2.2)	11/463 (2.4)	-
<b>Feline</b>	3/17 (17.6)	7/118 <sup>a</sup> (5.9)	0/11 (0.0)	-	0/41 (0.0)	-	-
<b>Avian/Zoo/Wildlife</b>	-	-	0/36 (0.0)	-	0/2 (0.0)	0/3 (0.0)	92/278 (33.1)

<sup>a</sup>Includes all trichomonads.

<sup>b</sup>dash = 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 10/11 compared to fiscal year 09/10. The bottom table indicates the results of testing for copper for the given species and tissue sample.

<b>Nutrient</b>	<b>Number 7/10-6/11</b>	<b>%</b>	<b>Number 7/09-6/10</b>	<b>% Change</b>
<b>Copper</b>	1,601	39.7	1,925	-16.8
<b>Zinc</b>	523	13.0	624	-16.2
<b>Iron</b>	407	10.1	348	17.0
<b>Selenium + GSH.Px</b>	691	17.1	550	25.6
<b>Molybdenum</b>	112	2.8	106	5.7
<b>Vitamin A</b>	155	3.8	347	-55.3
<b>Vitamin E</b>	258	6.4	552	-53.3
<b>Macro elements (Ca,Mg,Mn,K, Na,P,Cl)</b>	278	6.9	756	-63.2
<b>Special Request</b>	9	0.2	65	-86.2
<b>TOTAL</b>	<b>4,034</b>	<b>100.0</b>	<b>5,273</b>	<b>-23.5</b>

## COPPER

<b>Species</b>	<b>Tissue</b>	<b>TOTAL</b>	<b>Results</b>
<b>Bovine</b>	Serum	220	100 < 0.6ppm (deficient)
<b>Bovine</b>	Liver	117	7 < 40ppm deficient 0 > 600ppm toxic
<b>Canine</b>	Liver	1,259	127 > 1,500ppm (toxic)

There were 121/370 (32.7%) 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 10/11 compared to fiscal year 09/10.

<b>Toxicant</b>	<b>Number 7/10-6/11</b>	<b>%</b>	<b>Number 7/09-6/10</b>	<b>% Change</b>
<b>Calculi</b>	176	19.9	134	31.3
<b>Bromide</b>	180	20.3	143	25.9
<b>Cadmium</b>	4	0.5	2	100.0
<b>Cholinesterase</b>	18	2.0	29	-37.9
<b>Cobalt</b>	11	1.2	13	-15.4
<b>Cyanide</b>	0	0.0	3	-100.0
<b>Nitrate/Nitrite</b>	110	12.4	93	18.3
<b>Strychnine</b>	9	1.0	6	50.0
<b>Sulfate/Sulfur</b>	214	24.2	291	-26.5
<b>Arsenic</b>	11	1.2	14	-21.4
<b>Lead</b>	87	9.8	116	-25.0
<b>Mercury</b>	15	1.7	28	-46.4
<b>Alpha- Mannosidase or Swainsonine</b>	0	0.0	0	0.0
<b>Anticoagulant Screen</b>	0	0.0	2	-100.0
<b>Other</b>	50	5.6	0	100.0
<b>TOTAL</b>	<b>885</b>	<b>100.0</b>	<b>874</b>	<b>1.3</b>

There was 2 positive Strychnine from 9 samples.

There were 8 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 10/11 compared to fiscal year 09/10 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 7/10-6/11	Toxo IgG/M 7/09-6/10 (%change)	Toxo CSF IgG/M 7/10-6/11	Toxo CSF IgG/M 7/09-6/10 (% change)	RMSF IgG 7/10-6/11	RMSF IFA 7/09-6/10 (%change)
<b>Canine</b>	2,559	2,507(2.1)	43	56(-23.2)	18	29(-37.9)
<b>Feline</b>	4,367	3,800(14.9)	7	11(-36.4)	NA	NA
<b>TOTAL</b>	<b>6,926</b>	<b>6,308(9.8)</b>	<b>50</b>	<b>67(-25.4)</b>	<b>18</b>	<b>29(-37.9)</b>

Species	PositiveToxo IgG	Positive Toxo IgM	Positive Toxo CSF IgM	Positive RMSF IFA
<b>Canine</b>	216/2,559 (8.4)	134/2,559 (5.2)	2/43 (4.7)	1/18 (5.6)
<b>Feline</b>	625/4,367 (14.3)	190/4,367 (4.4)	0/7 (0.0)	NA
<b>TOTAL</b>	<b>841/6,926 (12.1)</b>	<b>324/6,926 (4.7)</b>	<b>2/50 (4.0)</b>	<b>1/29 (3.4)</b>

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 10/11 compared to fiscal year 09/10.

Test	Number 7/10-6/11	Number Positive (%)	Number 7/09-6/10	% Change
PCR Bartonella	118	7(5.9)	145	-18.6
PCR Fever Panel	5	NA	50	-90.0
PCR Cryptosporidia	22	6(27.3)	34	-35.3
PCR <i>M. haemocanis</i> / <i>M. haematoparvum</i>	59	1(1.7)	98	-39.8
PCR <i>M. haemofelis</i> / <i>M. haemominutum</i>	210	14(6.7)	356	-41.0
PCR <i>Neospora caninum</i>	57	2(3.5)	34	67.6
PCR <i>Toxoplasma gondii</i>	207	1(0.5)	161	28.6
PCR Ehrlichia/ Anaplasma/Neorickettsia	309	3(1.0)	118	161.9
PCR <i>Rickettsia</i> sp.	38	0(0.0)	53	-28.3
<i>E. canis</i> IFA	31	4(12.9)	36	-13.9
<b>TOTAL</b>	<b>1,051</b>	<b>-</b>	<b>1,085</b>	<b>-3.1</b>

## 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 10/11 is compared to fiscal year 09/10 and the percent change is given in parentheses.

Species	CBC 7/10-6/11	CBC 7/09-6/10 (%change)	Chemistry Panel 7/10-6/11	Chemistry Panel 1 7/09-6/10 (%change)	Fluid & Cytology 7/10-6/11	Fluid & Cytology <sup>a</sup> 7/09-6/10 (%change)	Other 7/10-6/11	Other 7/09-6/10 (%change)
<b>Canine</b>	951	898(5.9)	502	488(2.9)	3,178	2,973(6.9)	855	688(24.3)
<b>Feline</b>	228	297(-23.2)	141	170(-17.1)	772	716(7.8)	241	259(-6.9)
<b>Equine</b>	375	477(-21.4)	384	464(-17.2)	101	114(-11.4)	81	53(52.8)
<b>Bovine</b>	15	55(-72.7)	149	79(88.6)	8	5(60.0)	12	5(140.0)
<b>Other</b>	67	142(-52.8)	72	128(-43.8)	28	41(-31.7)	31	75(-58.7)
<b>Avian/ Reptile</b>	24	36(-33.3)	18	30(-40.0)	3	6(-50.0)	8	0(100.0)
<b>TOTAL</b>	<b>1,660</b>	<b>1905(-12.9)</b>	<b>1,266</b>	<b>1,359(-6.8)</b>	<b>4,090</b>	<b>3,855(6.1)</b>	<b>1,228</b>	<b>1,080(13.7)</b>

<sup>a</sup>There were 851 additional site cytologies in FY 10/11 compared to 849 in 09/10.

- There were 1,726 submissions of tissue for PCR to detect lymphoid malignancies (compared to 1,755 in FY 09/10), and 1,293 submissions for flow cytometry (compared to 1,310 in FY 09/10).

## 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, and is primarily for phenobarbital.

Species	Pituitary Adrenal Axis	Pituitary Thyroid Axis	Insulin	Total 7/10-6/11	Total 7/09-6/10 (% change)	TDM 7/10-6/11	TDM 7/09-6/10 (% change)
<b>Equine</b>	225	65	138	428	332(28.9)	0	3(-100.0)
<b>Canine</b>	639	935	16	1,590	2,171(-26.8)	268	200(34.0)
<b>Feline</b>	3	375	0	378	455(-16.9)	8	6(33.3)
<b>Other</b>	1	5	1	7	21(-66.7)	0	2(-100.0)
<b>TOTAL</b>	<b>868</b>	<b>1,380</b>	<b>155</b>	<b>2,403</b>	<b>2,979(-19.3)</b>	<b>276</b>	<b>211(30.8)</b>

## ROCKY FORD

Agent Name	Test Performed	Number 7/10-6/11	Number Positive	% Positive	Number 7/09-6/10	% Change
BLV	AGID	1,607	16	1.0	3	53,466.7
BVD	FA	117	10	8.6	145	-19.3
BVD PCR pools	PCR	1,298	42	3.2	1,316	-1.4
BVD Samples Pooled	PCR	50,850			51,375	-1.0
BVD	C-ELISA	3,240	97	3.0	3,493	-7.2
IBR	FA	94	13	13.8	145	-35.2
BT	AGID	1,603	12	0.8	1	160,200.0
Rota	ELISA	19	6	31.6	33	-42.4
Corona	FA	0	0	0.0	0	0.0
BRSV	FA	22	0	0.0	16	37.5
<i>B. abortus</i>	Card Test	33	0	0.0	35	-5.7
<i>M. paratuberculosis</i>	ELISA	1,528	6	0.4	5	30,460.0
Trichomonas	Culture	227	1	0.4	370	-38.6
Trichomonas	PCR	4,533	0	0.0	4,533	0.0
Trichomonas pooled	PCR	3,863	121	3.1	2,196	75.9
Trichomonas control program	PCR	9,471	NA		9,261	2.3
PPV	FA	0	0	0.0	0	0.0
PRRS	ELISA	0	0	0.0	3	-100.0
CAE	AGID	266	42	15.8	124	114.5
OPP	ELISA	2,037	212	10.4	8	25,362.5
EIA	AGID	8,170	2	0.02	8,707	-6.2
EIA	ELISA	535	2	0.4	503	6.4
West Nile	ELISA	15	3	20.0	14	7.1
<i>B. canis</i>	RSAT	46	0	0.0	28	64.3
CPV	Fecal ELISA	9	0	0.0	9	0.0
FELV	ELISA	3	1	33.3	0	100.0
FIV	ELISA	3	1	33.3	1	200.0
<b>TOTAL</b>		<b>89,589</b>			<b>82,329</b>	<b>8.8</b>

Arkansas Valley  
 Animal Disease Diagnostic Laboratory  
 27847 Road 21  
 Rocky Ford, CO 81067  
 Phone 71/254-6382 Fax 719/254-6055

**WESTERN SLOPE**

<b>Test Performed</b>	<b>Number 7/10-6/11</b>	<b>Number Positive</b>	<b>% Positive</b>	<b>Number 7/09-6/10</b>	<b>% Change</b>
<b>Aerobic culture</b>	558	NA	NA	624	-10.6
<b>Anaerobic culture</b>	112	NA	NA	71	57.7
<b>Milk culture</b>	174	NA	NA	118	47.5
<b>Antibiotic susceptibility</b>	301	NA	NA	389	-22.6
<b>Fungal culture</b>	16	NA	NA	44	-63.6
<b>Campylobacter culture</b>	39	4	10.3	52	-25.0
<b>Mycoplasma culture</b>	2	0	0.0	3	-33.3
<b>Bovis ELISA</b>	9,933	283 positive 163 indeterminate	2.8 positive 1.6 indeterminate	10,603	-6.3
<i>B. abortus</i>	118	0	0.0	47	151.1
<i>M. paratuberculosis</i>	35	0	0.0	1	3,400.0
<b>EIA (Coggins)</b>	1,871	0	0.0	2,095	-10.7
<b>CAE AGID</b>	60	9	15.0	16	275.0
<b>West Nile ELISA</b>	1	0	0.0	8	-87.5
<b>BVD cELISA &amp; PCR</b>	273	10	3.7	256	6.6
<b>Bluetongue AGID</b>	1	0	0.0	2	-50.0
<b>FA BVD</b>	0	0	0.0	70	-100.0
<b>FA BRSV</b>	0	0	0.0	16	-100.0
<b>FA IBR</b>	0	0	0.0	64	-100.0
<b>FA P13</b>	0	0	0.0	2	-100.0
<b>FA Corona</b>	19	6	31.6	12	58.3
<b>FA EHV</b>	0	0	0.0	4	-100.0
<b>Trichomonas Culture/PCR</b>	2,808	5	0.2	3,010	-6.7
<b>Fecal exam</b>	97	NA	NA	40	142.5
<b>Neospora Serology</b>	56	2	3.6	26	115.4
<b>Chemistry</b>	2	NA	NA	149	-98.7
<b>Necropsy</b>	89	NA	NA	92	-3.3
<b>Histopathology</b>	748	NA	NA	780	-4.1
<b>Uterine Biopsy</b>	2	NA	NA	16	-87.5
<b>Cytology</b>	94	NA	NA	115	-18.3
<b>TOTAL</b>	<b>17,409</b>	<b>NA</b>	<b>NA</b>	<b>18,725</b>	<b>-7.0</b>

\*58.4% Food Animal, 5.6% Equine, 13.5% Wildlife, 22.5% Pets.

Western Slope  
Animal Diagnostic Laboratory  
425 - 29 Road  
Grand Junction, CO 81501  
Phone 970/243-0673 Fax 970/242-0003