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Animal Health MATTERS Newsletter

Veterinary and Biomedical Sciences

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Animal Health MATTERS

Russ Daly
South Dakota State University

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Animal Health MATTERS

October 2013



Hennings named Veterinary and Biomedical Sciences Department Head

Russ Daly DVM, SDSU

Dr. Jane Hennings has been named as the new Department Head of the Veterinary & Biomedical Sciences Department and Director of the Animal Disease Research and Diagnostic Laboratory at South Dakota State University.

“Dr. Hennings will provide a strong and effective vision, as well as leadership for the department and laboratory. In her 17-year career at SDSU, she has demonstrated herself to be an exceptional researcher and a creative leader in diagnostics of emerging diseases,” said Barry Dunn, Dean of the College of Agriculture & Biological Sciences and Director of SDSU Extension.

As Department Head of Veterinary & Biomedical Sciences Department (VBSD) and Director of the Animal Disease Research and Diagnostic Laboratory (ADRDL), Hennings will lead a large team of faculty and researchers. She will provide leadership for strong and relevant programming in research, teaching, extension and animal health diagnostic services.

The VBSD and ADRDL complement one another in mission and staffing. The VBSD employs a faculty team of 18 and ADRDL employs a team of about 45 staff and researchers who annually conduct more than 500,000 diagnostic test procedures. “I look forward to meeting and talking with our stakeholders - veterinarians, students, researchers, livestock producers and industry leaders - to see how we can meet their needs in the area of veterinary and biomedical sciences,” she said.

Dr. Hennings has served as a faculty member at SDSU since 1996 and currently holds the rank of professor of Veterinary Science. She received her bachelor’s and master’s degrees from the University of Wisconsin-Madison and a DVM from the University of Minnesota, and practiced in Rapid City prior to coming to SDSU.

Her research at SDSU began in 1990 where she worked on the initial characterization of Porcine Reproductive and Respiratory Syndrome (PRRS) Virus and developed one of the first molecular tests, which was a polymerase chain reaction-based test that was used in describing PRRSV in boars and semen. As a result of her research in molecular diagnostics, she helped to launch the Molecular Diagnostics section of the ADRDL.

Even in her new position, Hennings will continue to remain involved in research responsibilities primarily involving infectious diseases of animals and those of importance to public health.

“Research work excites me. I really enjoy learning new things and discovering new things that can help the industry and livestock producers who need tools to fight infectious disease,” Hennings said. “I feel privileged to continue to work with people who raise livestock to help feed the world.”

A leader within the industry, Hennings has served on several USDA panels including Small Business Innovation Research Grants and the National Competitive Research Initiative Grants Program. Over the years she has been actively involved



Image by Jael Photography of Brookings

involved in several professional organizations, serving as an officer and chairing several committees. She is a member of the American Association of Swine Veterinarians, the American Association of Veterinary Laboratory Diagnosticians, the South Dakota Veterinary Medical Association, the American Veterinary Medical Association, the Conference for Research Workers in Animal Diseases, and Graduate Women in Science. Dr. Hennings has served as chair of the NC-229 group “Detection and control of PRRSV and emerging viral diseases of swine,” and has served as chair of the scientific program for the International PRRSV Symposium.

(Information source: SDSU University Marketing and Communications) ■

Director's Message: How Can We Serve You Better?

Jane Hennings, DVM, MS — Director ADRDL

Since this is my first message as the Head of the Veterinary and Biomedical Sciences Department and Director of the Animal Disease Research and Diagnostic Laboratory, I would like to personally thank you for supporting the laboratory and believing in us to “get the job done” for you!



Even though my current job started one month ago, I have been at the laboratory since 1990 after being in private veterinary practice in Rapid City for six years and graduating from the University of Wisconsin-Madison (BS) and University of Minnesota (DVM). I have been the Section Head of Clinical Pathology (for several years) and initiated the Molecular Diagnostic Section through developing the Porcine Reproductive and Respiratory Syndrome (PRRSV) PCR test many years ago. However, at this time, my main goal is to serve you! Therefore, I would like to visit as many clinics, vet-

erinarians, industries and people in the region and those outside the region that we have been serving to find out how we can be of the most help to you. So, I will be contacting many of you in the near future to see if there is a good time to visit. I am hoping we can take a “team” of people from the laboratory to discuss any future work we can do for you or discuss any current work for your suggestions and input. Alternatively, if you would like to call to discuss (if that is more convenient), please feel free to do that too.

Being part of South Dakota State University, our “job” consists of many responsibilities as described in the SDSU “2018 Impact” goals which include outreach, research and innovation, academic excellence, and being a high-performance university. More detail on these goals is described at: <http://www.sdstate.edu/impact2018/>

We believe by having these goals in front of us, we will also be able to serve you better, whether you are a pre-veterinary (undergraduate) or graduate student, veterinary or producer client or a member of the community concerned with public and/or animal health.

Currently, we have many interesting projects that we are working on includ-

ing: quickly developing and implementing new tests for the detection of Porcine Epidemic Diarrhea Virus (PEDV) which was first discovered in the US this year; implementing new instrumentation within the Bacteriology Laboratory for quicker results (eg. MALDI-TOF); continuing influenza detection and surveillance for individual clients or as part of the National Animal Health Laboratory Network (NAHLN); testing for food safety for the Food Emergency Response Network (FERN), mentoring a Brookings High School student in laboratory animal diagnostics; partnering with industries in the region to meet their research needs in the area of animal health; and many other projects that will be described in this newsletter and others in the future.

There is a quote by Ralph Waldo Emerson that I like very much and I hope to remember it during my time in this position. It states, “If a man write a better book, preach a better sermon or make a better mouse-trap than his neighbor, though he builds his house in the woods, the world will make a path to his door.” Hopefully, we will be able to serve you to the best of our ability and you will find your way to our door because of it. ■

SDSU Pre-Veterinary Students Accepted to Veterinary Schools for Fall 2013

Hillery Baysinger	Rapid City, SD	University of Minnesota	(Dr. Cindy Franklin, SDVMA, stethoscope presenter)
Lacy Bobb	Edgerton, MN	University of Minnesota	(Dr. Russ Daly, VBS Dept.)
Katie Boote	Fairview, SD	Iowa State University	(Dr. Rebecca Bott, Animal Science Dept.)
Alex Cermak	Brookings, SD	Iowa State University	(Dr. Larry Holler, VBS Dept.)
Tyler Grussing	Chamberlain, SD	Iowa State University	(Dr. Dave Knudsen, VBS Dept.)
Elizabeth Hicks	Utica, SD	Iowa State University	(Dr. Kelly Bruns, Animal Science Dept.)
Robin Hoffman	Mitchell, SD	Iowa State University	(Dr. Stacy Scramlin, Animal Science Dept.)
Alaina Kringen	Madison, SD	Iowa State University	(Jen Eide, Animal Science Dept.)
Jade Lanier	Harrisburg, SD	Iowa State University	(Dr. Alan Erickson, VBS Dept.)
Alexandra Meyer	Sioux Falls, SD	University of Missouri	(Dr. Bott)
Kylie Poel	Milbank, SD	Iowa State University	(Dr. Erickson)
Kenzie Rathbun	Fairview, SD	Iowa State University	(Myron Olson, VBS Dept.)
Adlai Schuler	Hazel Green, WI	Iowa State University	

SDVMA and SDSU Honor Pre-Veterinary Students with Stethoscopes

Russ Daly DVM, SDSU



SDSU Pre-veterinary students accepted to veterinary schools for Fall 2013. (Back row, L-R): Kylie Poel, Hillery Baysinger, Tyler Grussing, Alex Cermak, Alaina Kringen, Katie Boote, Kenzie Rathbun. (Front row, L-R): Jade Lanier, Lacy Bobb, Elizabeth Hicks, Alexandra Meyer, Robin Hoffman. (Not pictured: Adlai Schuler). (Photo: Eric Landwehr)

South Dakota State University pre-veterinary students—those going on to veterinary school as well as scholarship award recipients—were honored at a special ceremony held on April 26, 2013 on the SDSU campus.

Thirteen students who had completed their pre-veterinary coursework at SDSU were honored, and those present were presented Littmann Cardiology III stethoscopes

courtesy of the SDSU Veterinary and Biomedical Sciences Department and the South Dakota Veterinary Medical Association (SDVMA). Each stethoscope was personalized with the student's name and an SDSU insignia, and was presented to each student by an individual of their choosing who had played a special role in their education while at SDSU.

In addition, Veterinary and Biomedical Sciences Department scholarships were awarded to returning pre-veterinary students for the 2013-2014 school year.

Addressing the students, faculty, and family members present were Cindy Franklin, DVM, SDVMA President from Yankton; Dr. Laurie Nichols, Provost and Vice President for Academic Affairs; and Dr. Barry Dunn, Dean, SDSU College of Agriculture and Biological Sciences. Dr. Russ Daly, Interim Department Head, Veterinary and Biomedical Sciences, introduced the students accepted to veterinary schools, and Dr. Dave Knudsen presented the scholarship awards.

This is the second year of a partnership between the SDVMA and SDSU to recognize these pre-veterinary students. Dr. Franklin stated, "It was my pleasure, as president of the SDVMA, to represent our membership at the SDSU stethoscope ceremony. We have been proud co-sponsors of this event and feel that it is important to recognize the achievement of acceptance into a college of veterinary medicine. I thoroughly enjoyed meeting the students and their proud families. Many of these students have observed and/or worked with SDVMA members in their practices across the state. The SDVMA is always eager to encourage, support and mentor students working to make a career in any animal related field. We especially wish this year's stethoscope recipients the best in their veterinary college training and look forward to interacting with them as colleagues in the future." ■

2013-2014 SDSU Veterinary and Biomedical Sciences Department Scholarship Award Winners

Dr. J.B. Taylor Memorial Scholarship:

Olivia Kendall, Jordan, MN

RTI Veterinary Science Scholarship:

Tishawanna Carpenter, Pipestone, MN

Dr. Harry Halverson Memorial Scholarship:

Alyse Homola, Yacolt, WA

Richard and Carol Dierks Scholarship:

Shannon Warren, Edgerton, KS

J. Michael Robbie Scholarship:

Amanda Schmidt, Vesta, MN; Sarah Muirhead, Presho, SD.

Freeman Lewis Scholarship:

Haley Peterson, Spokane, WA; Lacey Quail, White, SD; Rachel Wilking, Tracy, MN.



SDSU Pre-Veterinary scholarship award winners, 2013-2014.

(Back row, L-R): Alyse Homola, Lacey Quail, Haley Peterson, Olivia Kendall. (Front row, L-R): Amanda Schmidt, Tishawanna Carpenter, Sarah Muirhead. (Not pictured: Shannon Warren, Rachel Wilking).

Molecular Diagnostics Section Remains on the Cutting Edge

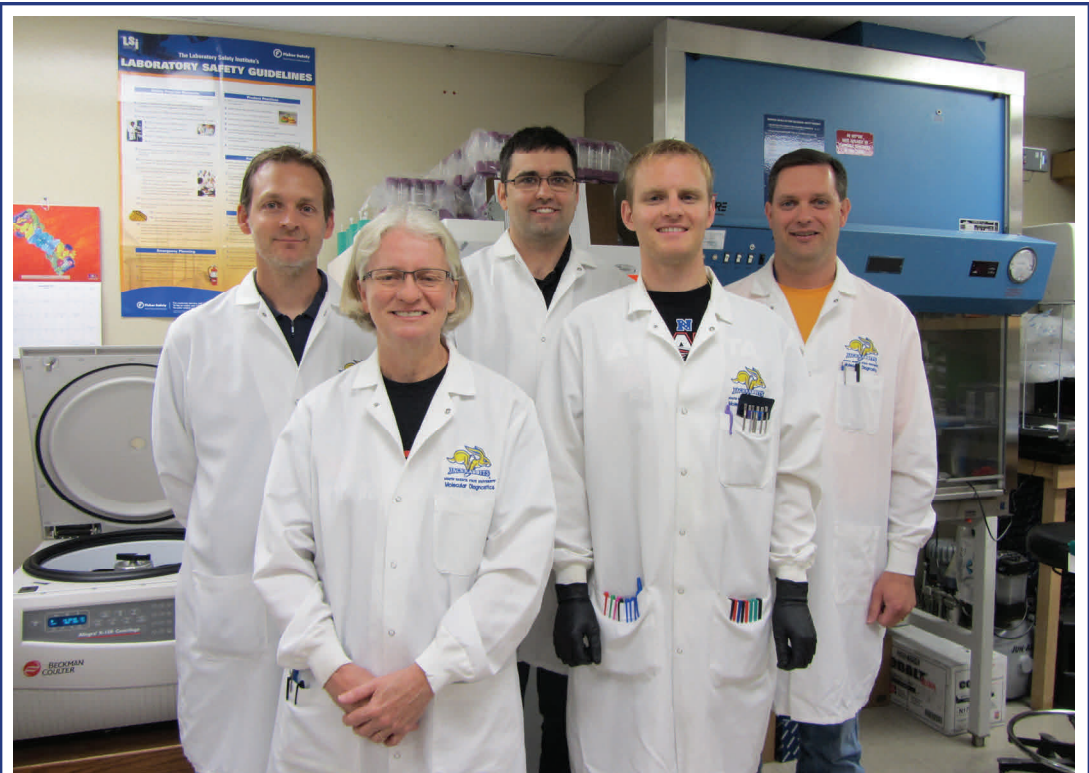
Russ Daly, DVM SDSU

One of the busiest sections at the SDSU Animal Disease Research and Diagnostic Laboratory is the Molecular Diagnostics section, better known to many as the “PCR lab”. The field of molecular diagnostics has revolutionized diagnostic veterinary medicine over the past two decades, and the adoption of these molecular techniques by the veterinary profession and livestock industries is reflected in the workload of this section at SDSU.

In fiscal year 2013, SDSU’s molecular diagnostic section completed over 76,000 PCR tests. The majority of these tests are on pooled samples, which means that the actual number of samples handled by the section is over 380,000.

“Molecular Diagnostics” is the broad term for procedures that detect an infectious agent or its potential to cause disease by analyzing the DNA or RNA of the organism. Polymerase Chain Reaction (PCR) is the most commonly employed molecular diagnostic procedure. PCR allows for the exponential amplification of an organism’s genetic material. This procedure may have several advantages over traditional culture techniques:

1. It may detect organisms more quickly than culture. For example, the causative agent of Johne’s disease in cattle may take up to 16 weeks to be grown in culture, while a PCR procedure may produce results in less than a day.
2. It may detect viruses or bacteria that don’t grow very well in culture systems, such as *Lawsonia intracellularis*, or porcine epidemic diarrhea virus. In other cases, organisms may be present in such small numbers that culture is difficult.
3. PCR may be useful in detecting the presence of bacteria in patients that have been treated with antibiotics, where culture is difficult at times.
4. Since PCR techniques have the ability to detect specific areas of the organism’s genome, the procedure may be useful in detecting different species of an organ-



Molecular Diagnostics staff (L-R): Roger Chapin, Julie Nelson, Travis Clement, Michael Dunn, Matt Dammen. Not pictured: Student workers Alex Voss and Marlee Braun.

ism, such as Mycoplasmas. It also can be employed to determine whether isolates of organisms such as *Clostridium perfringens* carry certain toxin genes, allowing those organisms to be “typed.”

5. PCR techniques in many cases can lend themselves to automation and high throughput – in the case of real-time PCR methods.

In some cases, however, PCR may not be the diagnostic procedure of choice. It is more expensive than most other methods, for example. In addition, since these techniques detect nucleic acid, a positive test does not necessarily mean that viable organisms were present in the sample. Because of its sensitivity, interpretation of results from certain samples may be unclear, e.g. differentiating pathogens from normal flora in upper respiratory samples from cattle.

Besides PCR techniques, genetic sequencing is also a role of the molecular diagnostic lab. Sequencing has proven to be a very useful tool for practitioners dealing with PRRS virus in swine opera-

tions, for example. Differentiating wild virus from vaccine virus, or determining whether an emerging infection is due to a novel PRRS strain or a strain endemic to a particular operation are critical applications of molecular sequencing.

The SDSU ADRDL molecular diagnostics section has a national reputation in Porcine Reproductive and Respiratory virus (PRRS) diagnostics. Currently, a large proportion of tests run by the molecular diagnostics section are to detect PRRS in serum, semen samples, or tissue. In FY 2008, almost 81 percent of the tests performed were for PRRS virus detection. Submissions for trichomoniasis, Johne’s Disease, and influenza (avian and swine) also account for an increasing number of test requests.

In addition to diagnostic work, the section also supports the research mission of the SDSU Veterinary Science Department by performing many tests for research projects, and the development of new molecular tests. As the needs of veterinary practitioners and surveillance/

regulatory programs evolve, the molecular diagnostics section has responded by adding new tests on a regular basis (see box).

A staff of one research associate, four senior microbiologists, and two student workers keeps this busy section running:

Research Associate II: Travis Clement is a 2005 graduate of SDSU with a BS degree in Microbiology and a 2008 graduate of SDSU with a MS degree in Biological Sciences. He has worked full time in the Molecular Diagnostic section since 2005, though Travis had worked as a student in the section during his undergraduate course years. His section responsibilities include everyday management of the section and new test validation and development.

In June 2013, the Professional Staff Advisory Council awarded Travis with the Professional Staff Award for Excellence in Professional Service.

Senior Microbiologist: Roger Chapin is a 1992 graduate of SDSU with a degree in Microbiology and has over 12 years of experience at the SDSU ADRDL, including work with the bacteriology section, following two years at the South Dakota State Health Laboratory in Pierre. His section responsibilities consist of Johne's, avian influenza, BVDV, Clostridium and E. coli testing, in addition to new test development and validation.

Senior Microbiologist: Matthew Dammen is a 1997 graduate of SDSU with a degree in Microbiology and has over 10 years of experience at the ADRDL. His

area of specialization in the section is molecular sequencing. He also assists with both conventional and real-time PCR testing and new test development.

Senior Microbiologist: Julie Nelson has a Master's Degree in Biology from SDSU in 1989 and has been a part of the ADRDL for 19 years. Julie specializes in porcine diagnostic tests along with general laboratory maintenance.

Senior Microbiologist: Michael Dunn graduated from SDSU in 2010 with a degree in Microbiology with a specialization in Infectious Disease. He started working full time in the Molecular Diagnostics section of the ADRDL soon after, though Michael had worked as a student *Molecular Diagnostics* (Continued on page 7)

SDSU's ADRDL Demonstrates Rapid Response to Need for Porcine Epidemic Diarrhea Virus (PEDV) Diagnostic Tests

In late April, 2013, swine herds in several Midwestern states began to experience signs of illness that looked identical to those caused by Transmissible Gastroenteritis Virus (TGEV): severe diarrhea and dehydration in baby pigs, with similar but less intense signs in older animals. Mortality rates of up to 40% in some herds were reported. Traditional diagnostics for TGEV were negative in these cases, however; and ultimately these cases were attributed to Porcine Epidemic Diarrhea Virus (PEDV). Up to this point, PEDV had not previously been detected in the United States, but has been widely distributed in Asian and European swine herds.

SDSU's ADRDL was asked to collaborate with other Midwestern diagnostic laboratories in the ruling out of TGEV, and to aid with diagnostic efforts for these initial cases. Within a week of the confirmation of PEDV in these samples by NVSL and Iowa State, SDSU's molecular diagnostics section had developed a gel-based Polymerase Chain Reaction (PCR) test that would detect PEDV in fecal or tissue samples. Run in conjunction with a PCR to detect TGEV, disease conditions due to these two pathogens could be differentiated from one another.

Shortly after that test development, a real-time PCR for PEDV and TGEV was developed by the molecular diagnostics section. This more easily enabled the effi-

cient testing of large numbers of samples with rapid turn-around time.

Detecting the presence of viral DNA of a previously novel virus in such a short time was a considerable achievement, but propagating the virus in cell culture is another story. Successfully growing the virus means that live virus can be made available to researchers for development of serologic tests, for experimental pathogenesis studies, and for future vaccine development. Significantly, SDSU ADRDL scientists were the first in the nation to successfully grow the virus in cell culture, and have provided scientists around the country with virus for further study.

Since those initial efforts at detection, the ADRDL has been busy with PEDV submissions from around the country. Samples have ranged from feces and tissues from affected pigs, as well as environmental samples from barns and trucks that are being examined as a part of biosecurity programs. As of August 30, the ADRDL has tested 740 samples for PEDV, 96 of which have been positive (13.0%). These samples were submitted through 255 case accessions, 18 of which contained positive samples for PEDV (7%). Samples have been submitted from 9 different states. Interestingly, there has only been one case of PEDV reported in South Dakota, a herd in the south-central part of the state, back in May.

Swine producers who detect signs of diarrhea in their herds should contact their veterinarian to coordinate sample submission for PEDV testing. Once the samples are received at the ADRDL, results generally are available the next working day. The results can be accessed by the veterinarian 24 hours a day through the ADRDL's secure, password-protected web reporting site.

SDSU scientists continue to work on this emerging disease threat from many different angles, which will eventually mean the development of additional diagnostic techniques that will help swine producers more rapidly and more conveniently detect the spread of the virus through their herds. These additional tests will include blood tests to detect exposure to the virus as well as methods to "fingerprint" individual virus isolates.

While PEDV can spread readily between pigs and swine herds, it is not a zoonotic pathogen, nor does it represent a food safety concern.

Information about PEDV is rapidly changing. Swine producers who suspect the presence of the virus in their herd should contact their veterinarian for information about treatment and methods to limit the spread of the virus between groups on the farm and between farms. ■

Pieces and Parts

Comings and Goings

Dr. **Tanya Graham**, professor in the Veterinary and Biomedical Sciences Department, recently announced her retirement effective July 5, 2013. Dr. Graham had served as a diagnostic pathologist at the ADRDL since 2000. In 2005, she was appointed Associate Director of the ADRDL. While at SDSU, she participated in obtaining a Department of Defense grant to examine select agent security within veterinary diagnostic laboratories and developed a database of veterinary diagnostic tests. Dr. Graham will continue to live in the Brookings area and serve as a consultant to laboratories on biosecurity issues.

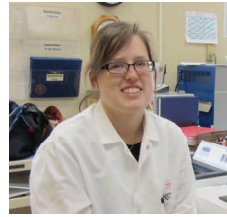
Drs. **Ying Fang** and **Weiping Zhang**, both faculty members with primary research appointments in the Veterinary and Biomedical Sciences Department, have taken positions with Kansas State University as of August 22, 2013. Both will be Associate Professors in the Diagnostic Medicine/Pathobiology Department at K-State's College of Veterinary Medicine. Dr. Fang started as a microbiologist with the ADRDL in 2000, obtaining her PhD here in 2004 and achieving the rank of associate professor in 2011. Her work with PRRS virus biology has garnered her international and local recognition. Dr. Zhang began his career with the department as a post-doctoral research associate in 2003, and also achieved the rank of associate professor in 2011. Weiping contributed a great deal to the understanding of E. coli pathogenesis while here at SDSU.

Margaret Perry, long-time employee in the histopathology section, announced her retirement as of May 22.

Stacey Wessels announced her resignation as of May 22. Stacey was a long-time employee in the virology section and moved with her husband and family to Rapid City.

Evonne Freyberg has also resigned her position, effective July 29, in the receiving office to take advantage of another employment opportunity in Brookings. Evonne had served the ADRDL and our clients since 1987.

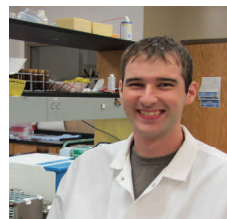
New Faces:



Amanda Brock began work as a senior microbiologist in the histopathology section in April. Amanda is an SDSU graduate, a former employee of the section, and had been previously working at Sanford in Sioux Falls. Amanda lives in Brookings with her husband.



Julie Colby took over the reins of the clinical pathology department in August as microbiologist. Julie is married with two children and three cats. She has degrees in Liberal Studies and Medical Laboratory Technology, along with certifications as a Medical Laboratory Technician and a Histology Technician.



Craig Long began in the virology section as a senior microbiologist in August. Craig graduated from SDSU with a Bachelor's Degree in Microbiology and a Master's Degree in Biological Science, and taught one semester of biology at the University Center in Sioux Falls. Craig's parents are in the legal profession (Larry, a judge in the Sioux Falls Circuit Court; and Jan, a legal secretary in Sioux Falls) and his sister, Claire Evans, is the Histology Technician at Sanford Research Center. Craig will be focusing on swine diagnostics as well as rabies testing within the section.

Jennifer Lemon, Senior Microbiologist has changed sections within the ADRDL, joining the virology section from serology.

ADRDL Participates in SDVMA Annual Meeting

ADRDL Presentations at This Year's SDVMA Annual Meeting

Dr. Regg Neiger (with Dr. Cassie Holtz, Hosmer) – Unusual Case of Bloody Diarrhea in Feedlot Cattle

Dr. Jane Hennings – Porcine Epidemic Diarrhea Virus Developments

Seema Das – Use of the MALDI-TOF Instrument for Quick and Accurate Bacterial Identification

Dr. Chris Chase and Jessica Mediger – Investigating Epizootic Hemorrhagic Disease in Cattle, South Dakota 2012.

ADRDL personnel offered SDSU ice cream as a treat for attendees at this year's SDVMA Annual Meeting in Sioux Falls. Pictured serving ice cream to State Veterinarian Dustin Oedekoven are: (L to R) Jon Greseth, IT coordinator; Deb Murray, bacteriology; Kelli Schmit, serology; Karen Belau, tissue prep (speaking to Dr. Adam Wiechmann); Dr. Oedekoven.



VBSD Gains Approval to Offer Minor in Animal Health

Russ Daly DVM, SDSU

At its May, 2013 meeting, the South Dakota Board of Regents granted approval to SDSU to begin offering a minor in animal health beginning with the Fall 2013 semester. The program will be administered by the SDSU Veterinary and Biomedical Sciences Department (VBSD).

Currently, the VBSD administers the pre-veterinary program for students interested in applying to colleges of veterinary medicine for their professional degree, but offers no bachelor's degree in veterinary science. The new Animal Health minor is a step that formalizes what many SDSU pre-

veterinary students were taking in addition to their pre-vet requirements.

"The new Animal Health minor will

appeal to those pre-veterinary students looking to enhance their preparation for vet school beyond the prerequisites required by veterinary colleges. The course list was influenced in part through consultation with our alumni, who suggested courses they felt were helpful to them in their professional curriculum," said Dr. David Knudsen, who along with faculty members Russ Daly and Alan Erickson, designed the minor course list. "In addition, the Animal Health minor will benefit students looking to become employed in the animal health or related industries following graduation." ■

SDSU Animal Health Minor

- **Required Courses (9 credits):**
 VET 103, Introduction to Veterinary Medicine (1 credit)
 VET 183, Veterinary Medical Terminology (1 credit)
 VET 233, Anatomy and Physiology of Domestic Animals (4 credits)
 VET 403, Animal Diseases and their Control (3 credits)
- **Elective Courses (students choose 9 credits from the following):**
 VET 424, Medical and Veterinary Virology (3 credits)
 WL 425, Wildlife Nutrition and Disease (3 credits)
 MICR 433, Medical Microbiology (3 credits)
 MICR 439, Medical and Veterinary Immunology (3 credits)
 MICR 440L, Infectious Disease Laboratory (3 credits)
 HSC 445, Epidemiology (3 credits)
 BIOL 467, Parasitology (3 credits)
 VET 476, Advanced Mammalian Physiology (4 credits)

Molecular Diagnostics

(Continued from page 5)

in both the Molecular Diagnostics and Serology sections since 2008. Areas of emphasis in the section include PRRSv PCR, as well as being the developer of the new All Species Herd Health Form. He is also a member of the Veterinary and Biomedical Sciences Department safety committee.

Student help: Alex Voss (Pharmacy Major) and Marlee Braun (Microbiology Major). The students help tremendously with sample preparation, specimen container decontamination and reagent replenishment. Alex is active in the ROTC program at SDSU. Marlee also works in the Clinical Pathology section at ADRDL.

The molecular diagnostics section is always interested in communication with their clients and is eager to answer any questions that arise about current or possible future tests. They can be reached at 605-688-5171. ■

Continuing Education Events

October 17-23 — AAVLD/USAHA Annual Meeting

Town and Country Resort, San Diego, CA

<http://www.usaha.org/Meetings/AnnualMeeting2013.aspx>

November 14 – 15 — Swine Disease for Practitioners Conference

Scheman Building, Iowa State University, Ames, IA

<http://www.extension.iastate.edu/registration/events/conferences/swine/index.html>

December 5 - 7 — Academy of Veterinary Consultants Winter Meeting

Renaissance Denver Hotel, Denver, CO

<http://www.avc-beef.org>

December 6-7 — Wyoming Veterinary Medical Association Winter Meeting

Casper, WY

<http://www.wyvma.org/>

December 7-11 — American Association of Equine Practitioners Annual Convention

Gaylord Opryland Resort, Nashville, TN

<http://www.aep.org/convention.htm>

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Animal Health MATTERS

The SDSU Veterinary and Biomedical Sciences Department conducts research, teaching, professional service, and extension service to South Dakota and the surrounding region. Entities within the department include the South Dakota Animal Disease Research and Diagnostic Laboratory, the Olson Agricultural Analytical Service Laboratory, and the Center for Infectious Disease Research and Vaccinology.

The South Dakota Animal Disease Research and Diagnostic Laboratory is a full-service, all-species diagnostic laboratory accredited by the American Association of Veterinary Laboratory Diagnosticians (AAVLD). The AAVLD accreditation program complies with international expectations for quality diagnostic services under the guidance of the World Organization for Animal Health (the OIE). The ADRDL collaborates with the USDA National Veterinary Services Laboratory on many federal disease monitor and eradication programs and is a member of the National Animal Health Laboratory Network. For information regarding the laboratory's Quality System, contact Rajesh Parmar – ADRDL Quality Manager, at 605 688 4309.

Editor: Russ Daly, DVM

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