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Animal Health MATTERS Newsletter

Veterinary and Biomedical Sciences

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Animal Health MATTERS

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Animal Health MATTERS

March 2011



Terrorism on the prairie?

ADRDL investigators secure grant to study security of biological agents

SDSU University Relations, Brookings Register

Terrorism comes in many forms.

It isn't always a martyr with a bomb strapped to his chest, or a "soldier for the cause" armed with an AK-47 who simply begins firing into a downtown crowd.

As dangerous – perhaps more so – is the militant who gets his hands on biological materials.

Diseases with which South Dakota farmers are well-acquainted could become weapons in the wrong hands.

What would happen to the food supply if a terrorist dumped a strain of anthrax on herds across the Midwest? Would America's beef industry collapse if someone had access to the proteins that cause mad cow disease and introduced them into the feed supply?

Scientists at South Dakota State University in Brookings are considering questions like those, and they're taking action to prevent them.

Late last fall, the university announced that it had won a federal defense contract to evaluate U.S. veterinary diagnostic laboratories' efforts to keep disease-causing microbes and toxins safely inside the labs.

"The whole goal behind this project is to find ways to minimize the likelihood that someone with nefarious intent could walk out of a lab with a vial of some bacteria or virus that they aren't supposed to have," said diagnostic pathologist Tanya Graham, associate director of SDSU's Animal Disease Research and Diagnostic Laboratory (ADRDL).

"The results of this project will allow the U.S. Department of Agriculture, the Centers for Disease Control and Prevention, the Department of Homeland Security, and all U.S. veterinary diagnostic laboratories to improve the existing policies and procedures that prevent inappropriate access to pathogenic microbes

and toxins."

Graham and Dr. David Zeman, head of SDSU's Veterinary and Biomedical Sciences Department and ADRDL director, are principal investigators for the \$1.5 million Department of Defense contract, which will help protect both humans and animals.

Sensitive issue

"Laboratory security has been a sensitive issue for infectious disease diagnostic and research laboratories, especially since 9/11," Zeman said. "Securing the pathogens we work with is important so that those intent on malicious activities will not have access to them."

Zeman says the SDSU study will provide important, updated information that can be used by other animal health laboratories and research units across the country. The study data will help them to assess their vulnerabilities.

Barry Dunn, dean of SDSU's College of Agriculture and Biological Sciences, said the project reaches far beyond South Dakota. "(It) will greatly improve the security of our nation," he said.

SDSU is working with Science Applications International Corp. and Sandia National Laboratories, to carry out different parts of the two-year study.

The grant calls for SDSU's Department of Veterinary and Biomedical Sciences to identify the strengths and weaknesses of the current biosecurity procedures in place at American veterinary laboratories. It will also take into consideration best practices in similar laboratories in other countries.



Photo: Johns Hopkins University

The Brookings university also will get funding to improve its Animal Disease Research and Diagnostic Laboratory, even though the facility already meets the requirements set for labs authorized to handle what the federal government has identified as "select agents."

Sandia National Laboratories, acting as a subcontractor to SDSU, will evaluate the effectiveness of the additional biosecurity safeguards through its International Biological Threat Reduction Program.

"Select agents" include pathogens such as the bacteria that cause anthrax, for example. Veterinary diagnostic labs in states like South Dakota routinely handle anthrax bacteria because anthrax spores are active in the soil of the region. Livestock deaths occur in the Great Plains states every year when grazing animals ingest the spores.

Anthrax exams

Diagnostic labs ordinarily do examinations to determine what killed the animals, and researchers in "select agent

Terrorism

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Director's Message: Essential State Infrastructure for Animal Health

David H. Zeman, DVM, PhD, DACVP — Director ADRDL

The SDSU Animal Disease Research and Diagnostic Laboratory (ADRDL) has provided animal health diagnostic and research services to South Dakota and the region since 1887. That was long before the establishment of the “modern veterinary diagnostic lab” as officially established by state statute in 1967. Why did South Dakota legislators, and those in similar livestock intensive production states, authorize and build such laboratories during the decades of the 40s, 50s and 60s? The short answer: there was an intense hunger for accurate, timely, unbiased scientific laboratory data regarding animal diseases, especially in our food producing animals but also our companion animals and wildlife. The hunger for this data came from many sources including the consumer, livestock producer, veteri-



narian, and state and federal animal health regulatory officials. It's quite logical; if those in charge of the care and health of animals are going to keep their animals healthy or battle diseases, they simply need to know what they are battling. Could the disease outbreak be a nutritional problem, or a virus, or bacteria, or parasites, a case of poisoning, or what? Unless a comprehensive diagnostic investigation is conducted it becomes a complex guessing game with big stakes on the correct guess. If it's a new disease syndrome, then research is required to prove the causative factors and understand the new disease to effectively counter it.

The ADRDL remains busy with diagnostic and research activities. Well over half of our work is funded by user fees, grants and contracts. The nature of the

business has changed over the decades; much of our work is now on the preventive and business side of animal health, rather than simply reacting to disease outbreaks. For example our work helps producers eradicate specific diseases or helps them establish herd health status so they can ship their animals and animal products to customers in other states or around the world. Surveillance and research continues to be important areas of our activity, applying new strategies and technologies to animal health issues at every opportunity.

So the diagnosticians and researchers of this laboratory are grateful to those legislative leaders from the past that had the insight and wisdom to establish the modern ADRDL and by their actions declare it an *essential part of the state's infrastructure*. By their actions they declared that “*Animal Health Matters!*” The faculty and staff of the ADRDL are proud to serve all animal owners of South Dakota and the region. ■

Terrorism

(Continued from page 1)

facilities” that meet stringent security guidelines sometimes keep pathogens such as anthrax in the lab to carry out research.

A major part of the SDSU project involves work by teammate Science Applications International Corporation (SAIC), which is developing a software application that can be used as a pre-employment screening tool for people seeking jobs in select agent facilities.

SAIC's role is to evaluate whether such a software program would be useful in determining who should have access to pathogenic organisms such as anthrax.

Graham said the scope of the overall project reflects the heightened importance given to biosecurity at veterinary facilities since the terrorist attacks of Sept. 11, 2001.

Federal agencies have tightened institutional and personal security measures and procedures. The changes should pre-

vent the loss, theft or intentional release of pathogens and toxin-producing organisms held or shipped by laboratories.

“At the Animal Disease Research and Diagnostic Laboratory at South Dakota State University and at other labs like ours around the country, that translates into multiple layers of security, with rigorous annual inspections by the USDA and the CDC,” Graham said.

The procedures “ensure that we protect people from the germs and germs from the people.”

Not all biosecurity measures work equally well in each laboratory, Graham said, and veterinary diagnostic lab workers around the U.S. or in other countries may have good ideas that could improve biosecurity. The two-year study could

bring some of those ideas to light.

Former Rep. Stephanie Herseth Sandlin and Sen. Tim Johnson of South Dakota helped secure the contract for SDSU's Veterinary and Biomedical Sciences Department, working with SDSU Vice President for Research Kevin Kephart. ■



Reflections on the Veterinary Medical Loan Repayment Program (VMLRP), 2010

Russ Daly, DVM, DACVPM, Extension Veterinarian

The Veterinary Medical Loan Repayment Program (VMLRP) recently announced its first awardees. Sixty-two veterinarians were awarded an average of \$96,582. Award amounts were based on an applicant's outstanding veterinary educational loan balance, and are spread out over three years. The total award also includes taxes that are paid by the program on the applicant's behalf, since awards are treated as taxable income to the awardees. A maximum of \$25,000 per year of loan payment was available to the successful awardees.

Veterinarians who were awarded payments through the VMLRP are obligated to provide veterinary services within a designated veterinary shortage area for the length of their award. These shortage areas were designated by USDA NIFA (National Institute of Food and Agriculture – formerly CSREES) following a nomination process by state animal health officials. In all, 43 states had at least one shortage situation designated.

These situations were either geographic areas with a shortage of food animal veterinarians, or where a distinct need for veterinarians in areas such as public health, food safety, or education existed. South Dakota had four shortage situations designated, and three of those situations saw veterinarians gain VMLRP awards. Only one awardee was possible within a particular shortage situation.

The seeds for the VMLRP were planted when the National Veterinary Services Act was passed by Congress in 2003. The program was given only bare-bones funding until fiscal year 2010, when appropriations made the program possible to give awards for the first time this year. Currently, preparations are underway to

administer the second round of awards in 2011.

The Application Process

Full details on the application process can be found at the VMLRP website (see

The Review Process

After an initial screening, the applications are reviewed by a panel of reviewers. The panels consist of a mix of veterinarians from practice, industry, and academic settings. The panel discusses and ranks each application, which is used to distribute awards according to the total amount of funds available.

The panelists' task is primarily to create the best match between an applicant and a shortage situation. Factors taken into consideration include work history, community involvement, and special training. Panelists pay close attention to the needs of the particular shortage situation and the characteristics and ability of the applicant to meet that need.

A Panelist's Experience

I was asked to serve on one of two initial VMLRP review panels this past August. The panel included 17 veterinarians, all with expertise in food animal veterinary medicine. Great pains were taken in assembling

the panels, such that all parts of the country, profession segments (public vs. private practice), genders and ethnic backgrounds were represented.

We met at the NIFA offices in Washington, DC and spent two and a half full days discussing and ranking applications. Prior to our face to face meeting, all panelists had homework to do: reading applications and compiling an individual evaluation on the merits of each application. Each panelist reviewed a quarter of the applications in detail.

Each application came up for discussion one by one. I was not allowed to review or make any comments (even general ones) about applicants from South

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Comments from a Successful South Dakota VMLRP Applicant :

- ...the application process requires you to evaluate yourself and your practice and put into words the benefits that you as a rural veterinarian and your rural practice provide to your patients, clients, community, and the agricultural industry.
- ...I am glad that I applied even if I hadn't received [an award]: it helped to remind me why I wanted to be a veterinarian in the first place.
- Even veterinarians take for granted all that our profession does to help our community...when you break down into categories the different hats that rural vets wear daily (preventive medicine, ambulatory medicine, regulatory services, emergency services, third party validation for USDA programs, BQA training, public health, herd management and nutrition, mentors for 4-H and FFA, job shadowing, community service, etc.) you realize [what a rural veterinarian does] to help make a rural community stronger and more sustainable.
- ...if you portray how closely you, your practice and your community are tied you will have success in obtaining an award.
- ...I was looking at making payments on my school loans for the next 25 years. This award now provides me and my family with a little more financial flexibility in our monthly budget. Having the majority of school loans paid off over 3 years also means a considerable savings in interest, so the reward had a compounding effect...
- I am truly appreciative that this program became available and that I was selected as a recipient. I have a renewed energy for my profession and less financial stress for my family.

link at the end of the article). Essentially, veterinarians:

- need to practice in – or accept an offer to practice in – one of the designated shortage situations.
- have to have educational loans that have not been consolidated with non-educational loans, or loans with a spouse or other person.
- cannot be currently serving out another obligation to practice under other state or federal programs (for example a state's loan repayment program), unless that obligation has already been completed.

The application is also detailed on the VMLRP website.

The Clinical Pathology Section at SDSU's ADRDL

Russ Daly, DVM DACVPM, Extension Veterinarian

Although it's housed in the smallest laboratory of all the SDSU ADRDL's sections, the Clinical Pathology section performs big numbers of tests on clinical specimens such as whole blood, serum, and fecal samples. Whole blood counts, serum chemistry panels, and parasitology exams are the most common examples of tests requested by veterinarians from across the region. Most tests feature one-day turnaround times, which, when coupled with 24-hour VADDS access to results over the internet, are a valuable alternative to in-house analyzers for many veterinary clinics across the region.

Of the serum chemistry tests performed by the clinical pathology section, most practitioners take advantage of the panels put together for small animals, ruminants, and horses. A dairy management panel that includes Beta-hydroxy butyrate (BHB) and non-esterified fatty acids (NEFA) is also popular, and helps veterinarians in the diagnosis of subclinical ketosis and pre-calving energy balance. Complete blood counts (CBC's) are also a popular request on a variety of species, and are performed on the Cell-Dyn 3500 machine in the lab.

But on a test for test basis, parasitology exams outnumber either chemistry or whole blood analysis. Fecal floatation tests for internal parasites, examinations for cryptosporidia, and examination of culture pouches for *Tritrichomonas* are commonly performed, and vary greatly from month-to-month depending on the time of year. Fecal ELISA testing for rotavirus and coronavirus on calf fecal samples is also a responsibility of the clinical pathology lab, and is a common request during calving season.

The clinical pathology lab is continually looking for ways to offer practitioners and diagnosticians more testing options. Currently, evaluation is underway on a panel that would include free T₄, T₃, and TSH by using the Mini VIDAS analyzer. Expanding the ELISA capabilities of the lab by using Luminex fluorescent bead technology is also on the horizon. Novel tests such as that for C-reactive protein in Alaskan harbor seals, and determining stress levels in wild fish through measuring cortisol levels have been "off-the-beaten-path" projects taken on by the

laboratory. The clinical pathology lab also assists graduate students and researchers with their projects and even has helped high school students with science fair projects.

The Clinical Pathology lab is run by a faculty section leader, Dr. Dave Knudsen; a senior microbiologist, Debra Thomas, and several student workers.

Section Leader: Dr. David Knudsen, DVM, MS, DACLAM is

a professor and anatomic pathologist at SDSU. He has been section leader of the clinical pathology laboratory since 2002. A native of southern Colorado, he practiced in mixed animal practice in Montana and Colorado following his graduation from vet school at Colorado State University in 1982. He then entered a residency for both Veterinary Pathology and Laboratory Animal Medicine at the University of Missouri and became board certified in Laboratory Animal Medicine in 1989. Founding and operating a service lab for the University of California and California State University systems at UC-Davis followed. Prior to coming to SDSU, Dr. Knudsen was a pathology consultant in the northern Pacific Coast region for a variety of industry and research organizations.

Dr. Knudsen's specific duties in the Clinical Pathology section include interpretation of cytology accessions, parasite identification, and review of laboratory results on a case-by-case basis, in addition to his duties as a pathologist and case coordinator at the SDSU ADRDL. He teaches graduate level pathology and developmental biology courses and advises pre-veterinary students here at SDSU. In his spare time he enjoys playing brass instrumental music, and skiing.



Clinical Pathology Lab staff at SDSU (L-R): Kassi Sheridan, student worker; Debra Thomas, Senior Microbiologist; Lisa Ball, student worker. Not pictured: Dave Knudsen, Section Leader.

Senior Microbiologist: Debra Thomas, MS. A native of a farming operation near Roscoe, SD, Debra graduated from SDSU with a Bachelor of Science degree in Clinical Laboratory Science in May 2002. She completed an internship at Sanford Hospital and is board certified with the American Society of Clinical Pathology (ASCP). Debra's first position at the ADRDL was in the Bacteriology section, starting there in June 2002. Six months later, she began work in the clinical pathology lab, and has been there ever since. Debra completed her Master of Science degree in Biological Sciences in May 2010. She is responsible for hiring and training student workers, performing the wide range of tests offered by the section, and calibrating the analyzer machinery and pipettes. Debra's job provides her with plenty of variety and with satisfaction in watching the students she has hired develop skills and go on to use those skills following graduation.

Student Workers:

•**Lisa Ball.** Lisa is currently a senior Microbiology major at SDSU, and has worked in the clinical pathology section since May 2010. She performs quality control procedures and diagnostic testing

on hematology and chemistry analyzers, and performs urinalysis and fecal testing procedures. Lisa's post-graduation plans are to enter a Medical Laboratory Science internship program at Sanford Hospital in Sioux Falls.

• **Kassi Sheridan.** Kassi is a junior at SDSU also majoring in Microbiology, from Paynesville, MN. Her duties within the clinical pathology section, with which she has worked since May 2010,

include complete blood counts, chemistry panels, urinalysis, parasitology, fecal ELISAs, and other tasks as needed. After her graduation in May 2012, Kassi also plans on pursuing a Medical Laboratory Science internship at Sanford Hospital in Sioux Falls.

Clinical pathology is a critical tool in helping practitioners, whether companion animal, equine, or food animal veterinarians, effectively diagnose and monitor

treatments for many of their patients' ailments. SDSU's clinical pathology lab plays an important role in providing and developing those tools for practitioners across the region. As such, they are always open to comments, suggestions, and questions from clients using their services. Contact them at 605-688-5171. ■

VMLRP

(Continued from page 3)

Dakota or other people I had potential conflicts of interest with.

As with most application processes, it seems somewhat clichéd to state that it was "a tough process with many worthy applicants," but that certainly appeared to be the case. The great majority of the applications came from veterinarians currently practicing within a specific shortage situation; relatively few were from veterinarians looking to move into an area from another location. Was the intent of the program to attract outside people into these areas? Perhaps. But one could also make the case that without loan repayment help, current practitioners would be more likely to move out of the areas or cease providing services to food animal clients.

The criteria on which applicants are evaluated are listed on the VMLRP website, but to me there were certain attributes that made some applications stronger than others:

- strong evidence of **ties to the communities** within the shortage area – putting down family roots, involvement in local civic groups, school boards, elevator boards, etc.
- evidence of **success in meeting the needs of food animal clients** – testimonies from producers sometimes were powerful, especially if they made the case that without the services of this veterinarian, their livelihood and ability to provide animal care would be adversely affected.
- **affirmation by the current employer** (if applicable) that the applicant is and will continue to be an important part of the practice.
- evidence of developing **new skills or techniques** in order to better

serve the food animal clientele.

- **plans for the future:** professional development for the applicant, business development for the practice.
- A case made that the client mix and services provided are a **good match** for the shortage situation being applied for. An applicant spending time detailing their passion for dairy medicine, therefore would not be considered a good match if the shortage situation only mentioned beef cows as needs.
- **geographical fit** within the shortage area. If an applicant's practice was based outside the designated shortage area, an excellent case would have to be made that the applicant is – or has realistic plans for – serving that area.
- a good case made for the **need** for the loan repayment and how it would help the veterinarian alleviate the shortage situation.

Evaluating all of these measures is only possible if they are included in the applicant's personal statement or through comments from a recommendation. One thing the panel cannot do is "read between the lines" or make assumptions that aren't outlined in the application.

The existence of loan repayment programs, whether the VMLRP or the many state incentive programs that have popped up in recent years, is not without controversy. There is discussion within the profession whether use of public funds to bolster the ranks of food animal veterinarians is a proper way to address shortages. There is also discussion whether real shortages of food animal veterinarians exist or not. Frankly, I have, and will continue to, struggle with those questions personal-

ly. But realize that – for now and into the near future – this program is in place. It's not going anywhere. Knowing that, it's in the profession's best interest to make sure the program works as well as it can and that the funds go to the right places – deserving veterinarians who demonstrate a dedication to serving food animal clients and their animals.

Closing Thoughts:

Veterinarians who carry educational debt and who practice – or plan to practice – within a designated shortage area should apply for the VMLRP. The money is out there, and has the potential to benefit one's professional life greatly.

If you do apply, present outstanding evidence why you would be a good match for the shortage area you are applying to. The only thing the panel has to go on is your application. Make sure all the pertinent points are included.

South Dakota veterinarians are eminently qualified to serve on the VMLRP review panel. Consider volunteering when the request comes out. It does involve some hours away from practice reviewing, traveling, and meeting. But expenses are paid and it is a good way to ensure that South Dakota values are instilled into the process.

Full details on the VMLRP are available at the website: www.nifa.usda.gov/nea/animals/in_focus/an_health_if_vmlrp.html.

Designated shortage situation nominations are due from state animal health officials towards the end of March, and applications should be available in May, with a deadline of July 1. Interested applicants should check the website frequently as information changes. ■

Calf Scours Submissions at SDSU ADRDL

Russ Daly, Regg Neiger, Dale Miskimins, SDSU ADRDL

Calving season is upon us, and with it the possibility of calf scours problems in our cow-calf herds. Diagnostics can play a significant role in identifying pathogens within calf populations, helping veterinarians design control and treatment programs. The majority of calf diarrhea/enteritis pathogens seem to be very similar from year to year. In recent years, however, *Clostridium* infections and *Salmonellosis* seem to be attracting more attention as significant problems within cow-calf as well as dairy calf populations. With these conditions, and others, sample selection and proper submission is often the key to getting an answer versus a “no diagnosis.”

Some observations going into this calving season:

- In order to accurately diagnose enteric disease, but especially Clostridial disease, well-preserved samples

(intestine) are the clincher. We are finding that many of these infections display very subtle lesions on histopath that would not be there if any autolysis is present. This will mean submitting (and quickly preserving in formalin) samples from very recent deaths, or submitting live calves to the laboratory.

- In some of these cases, lesions are confined only to a relatively small portion of the intestine, so portions of duodenum, ileum, jejunum, cecum, and colon are all important in increasing the odds of accurate diagnosis. It is of note that in some cases of Clostridial enteritis, lesions have been confined to the duodenum, while in other cases, lesions may be confined to the colon. This illustrates that sending samples from throughout the digestive tract (instead of just jejunum) will increase the likelihood of diagnosis.

- Diagnosis of *Salmonella* infections is greatly aided by the submission of fresh mesenteric lymph nodes for culture.

Including as much history (beef vs. dairy, age of calf, extent of problem in herd) as possible on the submission form will also help diagnosis.

Some calf enteritis problems can be extremely challenging to deal with from the viewpoint of the practitioner and producer. When clinical problems persist in a herd, it is important to communicate with the pathologist about the situation. If samples from the same herd have been previously submitted, it is very helpful to indicate this on the submission form with specific case numbers if possible. As with any disease problem or submission questions, please feel free to contact the SDSU ADRDL with your questions at 605-688-5171. ■

Calf Scours / Enteritis Submission Guidelines (from SDSU ADRDL User Guide)

1. **Fecal Samples:** 2-5 ml in plastic bag or tube
2. **Tissue Samples**--the following are recommended in addition to any tissues with gross lesions:

Duodenum

- One 6-inch length, fresh
- One 2 inch-length fixed in 10% buffered formalin

Jejunum

- One 6-inch length, fresh
- One 2 inch-length fixed in 10% buffered formalin

Ileum

- One 6-inch length, fresh
- One 2 inch-length, fixed in 10% buffered formalin

Cecum

- One 2-inch square, fresh
- One 2-inch square, fixed in 10% buffered formalin

Spiral Colon

- One 2-inch loop, fresh
- One 2-inch loop, fixed in 10% buffered formalin

Mesenteric lymph nodes (one each from mid and lower gut), fresh

Colon or Cecal content: 2-5 ml in plastic bag or tube

Liver or other organs: to culture for cases of septicemia, fresh and fixed

For Optimal Enteritis Diagnostic Success:

- Samples must be taken as soon after death as possible.
- Do not open or tie-off intestinal tissue that you are submitting to the lab.
- Do not freeze.
- Pool all formalin-fixed tissues in one container with adequate amounts of formalin.
- Use 10 parts of formalin to 1 part tissue.
- Formalin volume can be reduced for transport if the tissues have been fixed for a day or more.
- For fresh tissue, package and label the small intestine separately from the cecum/colon.
- Don't mix intestinal samples with other viscera.
- Chill fresh intestine and colon content before mailing.
- Pack in an insulated diagnostic shipping container with enough ice packs to maintain refrigeration until the specimens reach the laboratory.

Veterinary and Biomedical Sciences Department Welcomes New Full-Time Staff Members

Maricil (Cecile) Aguiar – Histology and Food Safety Laboratories, ADRDL



Cecile was hired in December 2010 as a laboratory technician in both the histology and food safety laboratories within the ADRDL. She holds a Bachelor of Science degree in Microbiology with an infectious disease specialization from SDSU. Her duties in the histology lab include producing and processing H&E stained slides for the pathologists, performing immunohistochemistry staining on samples for Chronic Wasting Disease (CWD) and Scrapie, and performing special stains when requested by pathologists. Within the food safety laboratory, Cecile applies many detection techniques against food-borne pathogens such as Salmonella, *E. coli* 0157:H7, and Listeria in a variety of food samples submitted to the ADRDL. She recently gained a certificate of training through the Food Emergency Response Network (FERN).

Michael Dunn – Molecular Diagnostics Laboratory, ADRDL



Mike grew up in Mission, South Dakota, on a cattle ranch owned and operated by his grandparents and parents. At the age of 8, he moved to Brookings with his family when his father became employed by the SDSU Animal and Range Science Department. While Mike attended SDSU, he was employed at the ADRDL in the serology and molecular diagnostics sections. He completed his Bachelor of Science degree in Microbiology with an infectious disease specialization and a chemistry minor in May 2010. Mike was hired full-time in the fall of 2010 to work in the molecular diagnostics laboratory, where he prepares samples, performs nucleic acid extraction, and runs PCR tests on extracted samples. Part of his duties also includes client communications regarding sample submission and results.

Colleen Smith – Bacteriology Laboratory, ADRDL



Colleen is a native of western South Dakota, having grown up southeast of Buffalo on a 3,000-acre cattle ranch that has been in her family for over a hundred years. After graduating from Harding County High School, she attended USD for a year before transferring to SDSU. At SDSU, she was active in the Clinical Laboratory Science Club and the American Society of Clinical Laboratory Scientists, to which she still belongs. Colleen graduated from SDSU in 2010 with a Bachelor of Science Degree in Medical Laboratory Science. She became a full-time employee within the bacteriology laboratory in September. Colleen is responsible for culturing and isolating microbial organisms from diagnostic specimens for identification and analysis. ■

Pieces and Parts

- Veterinary and Biomedical Sciences Department faculty members were among those honored at the SDSU Faculty Recognition Event held February 15, 2011.
 - **Dr. Alan Young**, Professor, was named the 2011 Distinguished Researcher and Scholar for the College of Agriculture and Biological Sciences.
 - **Dr. David Francis**, Professor, was named runner-up for the Pat and Jo Cannon Intellectual Property Commercialization Award.
 - **Nancy Thiex**, Professor, Olson Agricultural Analytical Service Laboratory, was recently selected for membership on the FDA's Development Committee for Feed Regulatory Program Standards. The standards developed by this committee will establish the foundation for state programs that oversee feed and feed establishments.

Continuing Education Events

March 31-April 2

Academy of Veterinary Consultants Spring Meeting
Oklahoma City Marriott, Oklahoma City, OK <http://www.avc-beef.org>

June 5-7

SDVMA Summer Meeting, Ramkota Inn & Convention Center, Pierre, SD
(605) 688-6649 or www.sdvmed.org

June 18-22

Jackson Hole Veterinary Rendezvous, Hotel Terra and Teton Mountain Lodge,
Teton Village, WY <http://jhvr.org/>

June 16-18

Montana VMA Summer Conference and Trade Show, Billings, MT
www.mtvma.org

June 20-22

Nebraska VMA Summer Meeting, Chadron, NE <http://www.nvma.org>

August 7-10

South Dakota Veterinary Medical Association Annual Meeting, Ramkota Inn, Sioux Falls, SD (605) 688-6649 or www.sdvmed.org

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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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