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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



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Head/Director's Message

David H. Zeman, DVM, PhD
Director SDSU ADRDL/OBL

Animal Health Surveillance Demands Continue to Grow

Decades ago, the predominant reason for submission to a veterinary diagnostic laboratory was a morbidity and mortality investigation. Livestock were sick or dead and answers were sought to curb the outbreak and implement immediate preventive strategies. Morbidity and mortality investigations still happen of course, but now only account for approximately 50% of the testing activity at the ADRDL. The other half of testing activity is now antemortem testing directed at specific disease surveillance. Producers and veterinarians are attempting to stay ahead of outbreak situations by looking for early evidence of subclinical disease, through serological profiling for example. They are also much more active in targeting specific problem diseases and attempting to clear populations of specific infections. Sometimes surveillance has the specific goal of detecting and eliminating carrier animals. Concern over buying or selling carrier animals during a sale or testing for interstate/international transport are therefore common reasons for conducting herd surveillance.

State and federal agencies often support surveillance activities for diseases that have broad impact potential. For example, this summer the ADRDL tested over 1500 wild and domestic birds for the purpose of Avian Influenza Virus

surveillance in cooperation with the SD Game Fish and Parks, the US Fish and Wildlife Services, and the USDA.

Due to the increased opportunities available for participation in surveillance programs at no cost to the animal owner, you may have noticed a new statement on the bottom of our submission forms:

The ADRDL is an accredited AAVLD laboratory and a member of the USDA National Animal Health Network. Completing and submitting any submission form or any other means of requesting services creates a contractual agreement for services requested and the specimens submitted become the property of the ADRDL. In addition, at no additional expense to our clients, specimens submitted to the ADRDL may be subjected to additional testing upon the order of state or federal animal health officials, or whenever a Foreign Animal Disease is suspected, or in support of surveillance for other animal diseases.

It is my belief that surveillance programs are a great benefit to the overall health of our animal populations and thus benefit animal owners as well and should be utilized to the maximum opportunity available, especially so when the cost is free to the animal owners via key surveillance programs.

Diagnostic News - SDSU ADRDL

Combined North American/European-Like /LV "MultiPRRSV" Real-Time PCR Assay

Jane Christopher-Hennings, DVM, MS

Starting September 27, a combined (multiplex) real-time, single-tube PCR assay for the detection of both US and European-like/LV isolates has been available at ADRDL. This assay uses the same primers and probes as the currently used singleplex assays for US and European-like/LV assays as described in the *Journal of Clinical Microbiology* 42(10):4453-4461, 2004, "Detection of U.S., Lelystad, and European-like PRRSV and relative quantitation in boar semen and serum samples by real-time PCR".

Extensive testing was performed to determine that the sensitivity and specificity of the assay did not change between the singleplex to multiplex assay using both *in vitro* transcripts and field isolates (Table 1, Figure 1a, b). The "cut off" values for sensitivities are also equivalent to a previously described "nested PCR". Since SDSU has performed PCR for the detection of PRRSV since 1993 and the singleplex real-time PCR assays have been performed since 2003, numerous archived and current field isolates have been detected with

Animal Health Matters

these primers and probes. The price of this combined (multiplex) test will be the same as for the singleplex test, so

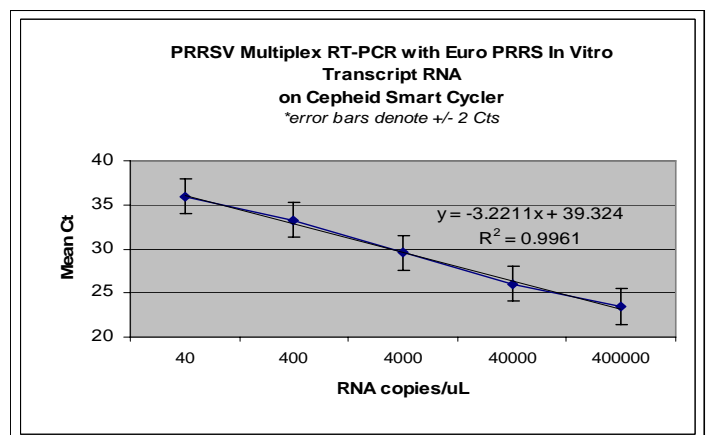
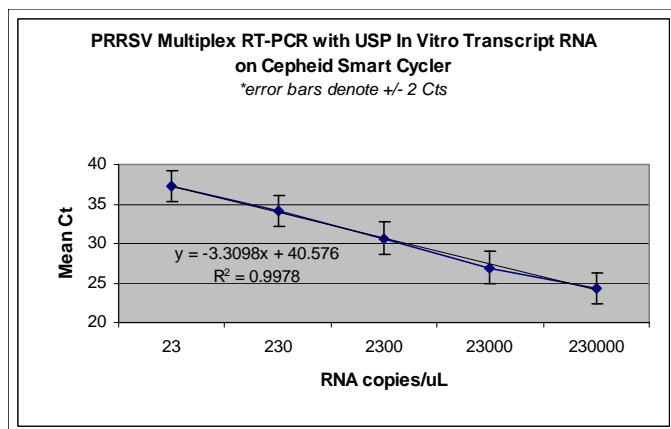
there will be a **significant savings** if you were previously testing for both US and EuroPRRSV/LV individually.

Table 1. Cycle Threshold (Ct) levels for 10-fold serial dilutions of US (left) and European-like (right) field isolates using singleplex vs. multiplex PRRSV PCR assays on the Cepheid® SmartCycler and ABI 7500 Real-Time PCR Instruments

PRRSV TCID ₅₀ /ml	US 10 ³	US 10 ²	US 10 ¹	US 10 ⁰	US 10 ⁻¹	US 10 ⁻²	EU 10 ⁴	EU 10 ³	EU 10 ²	EU 10 ¹	EU 10 ⁰	EU 10 ⁻¹
Singleplex (ABI 7500)	20.33	24.31	29.05	31.59	34.58	37.46	20.45	24.94	28.82	32.43	36.30	0
Multiplex (ABI 7500)	20.24	23.6	27.96	31.93	34.88	36.19	18.02	21.21	24.85	29.83	34.33	0
PRRSV TCID ₅₀ /ml	US 10 ³	US 10 ²	US 10 ¹	US 10 ⁰	US 10 ⁻¹	US 10 ⁻²	EU 10 ⁴	EU 10 ³	EU 10 ²	EU 10 ¹	EU 10 ⁰	EU 10 ⁻¹
Singleplex (Smart Cycler)	22.81	25.22	29.21	32.71	35.29	0	21.96	26.15	29.4	33.27	37.19	0
Multiplex (Smart Cycler)	22.25	24.90	28.88	32.08	35.69	36.83	21.70	25.16	28.25	32.60	36.66	0

Fig. 1a. Copies/ul of the serially diluted U.S. *in vitro* RNA transcript

Fig. 1b. Copies/ul of the serially diluted EuroPRRSV *in vitro* RNA transcript



Antemortem Diagnostics for Bovine Respiratory Disease: Obtaining Bronchoalveolar Lavage Samples

Russ Daly, SDSU

At times, veterinarians are faced with diagnosing respiratory conditions in groups of cattle that do not have a high rate of death loss, or are in the early stages of disease. Below are two methods for obtaining bronchoalveolar lavage (BAL) samples from calves or older animals.

BAL Technique #1 (consider for larger calves in chute):

Necessary equipment includes plastic tubing, a 60 cc syringe, and sterile fluid (0.9% sodium chloride). The tubing can be obtained from the Cole-Parmer Instrument Company, Vernon Hills, IL 60061, phone 1-847-549-7600 or 1-800-323-4340. The name of the product is Bev-a-Line V tubing, part number 06491-12. The internal diameter of the tubing is

1/8 inch and the outer diameter is 1/4 inch. The wall is 1/16 inch in thickness. The tubing comes in 50-foot lengths.

Animals to be tested must be restrained in a head gate or chute. The head must be elevated and extended with a halter. The tubing can then be passed through the nose, down through the trachea, and into the lung. A characteristic cough is usually heard when the tubing enters the trachea.

35-50 ml of the sterile fluid is used in smaller calves and up to 120 mls of fluid is used in larger animals. After instilling the fluid, it is immediately withdrawn and placed in a cool dark environment until it can be tested at a laboratory.

Courtesy: Dr. Dale Miskimins, DVM MS, South Dakota State University

Holiday hours:

Friday, Nov. 10 – Veteran’s Day observed
 Thursday, Nov. 23 – Thanksgiving Day
 Monday, Dec. 25 – Christmas Day
 Monday, Jan. 1 – New Year’s Day
 Monday, Jan. 15 – Martin Luther King, Jr. Day
 Mon., Feb. 19 – President’s Day

BAL Technique #2 (consider for smaller calves)

This bronchoalveolar lavage (BAL) technique is performed best in sedated calves (0.08 – 0.1 mg/kg xylazine IM) using a sterilized, flexible 10 French x 36” catheter with a balloon cuff (Mila International, Inc. Medical Instrumentation for Animals, Florence KY).

The calf is placed in sternal recumbency. Clean the nostril with a saline-soaked sponge. Hold the head of the sedated calf in an extended position, while the catheter is

introduced into the ventral meatus of the nose. The catheter is advanced down the nose and into the trachea until resistance is met as the catheter wedges in a cranial lung lobe bronchus. To facilitate proper catheter placement in the trachea, advance it during the inspiratory part of the respiratory cycle. Repeated coughing is an indication of proper catheter placement.

Once in place, the balloon cuff is inflated with 3 cc of air. Two 60-ml syringes are used to infuse 120 ml of sterile saline. A stopcock is applied to the second syringe and negative pressure is applied to aspirate fluid, a process that usually returns 10 to 60 ml of clear to mildly turbid (or slightly blood-tinged) frothy fluid. When no more fluid can be aspirated, a second aliquot of 120-ml of saline is infused and aspirated. After fluid collection is complete, deflate the balloon cuff and remove the BAL tube.

Courtesy: Dr. Sheila McGuirk, DVM, PhD, University of Wisconsin

Submitting BAL samples

After sampling, the fluid samples obtained from bronchoalveolar lavage should be refrigerated and submitted chilled to the laboratory as soon as possible. Samples may be submitted for culture (including *Mycoplasma* culture), virology, and cytology.

Samples for culture are best submitted in a sterile red-top tube. Submit one tube for regular culture, and one for *Mycoplasma*, if desired.

Virology samples are also best sent in a sterile red-top tube, chilled but not frozen. ELISA for BRSV may be performed on these samples, along with virus isolation.

Samples for cytology should be submitted in a purple-top EDTA tube. A significant cytology finding on a BAL fluid sample from a bacterial pneumonia case would be one that has greater than 50% neutrophils (BAL samples from a non-pneumonic calf would have 90% or greater macrophages).

Extension News - SDSU ADRDL

Tularemia cases diagnosed at SDSU ADRDL: September 2005 – October 2006

R. Daly, D. Miskimins, SDSU

Tularemia is a rare but potentially severe disease that can develop in many species of wild and domestic animals – but especially rabbits, rodents, cats, and humans. So far, during the period of September 2005 to October 2006, a total of five cases of tularemia have been diagnosed in animals submitted to the ADRDL at SDSU. This compares with one case in FY 04-05, 2 cases in FY 03-04, and 1 case in FY 02-03.

Tularemia is caused by the gram-negative coccobacillus *Francisella tularensis*. The organism is named for Edward Francis, a US Public Health surgeon who dedicated his life to researching the organism; and for Tulare County, California, where the syndrome was first described in ground squirrels in 1911. The organism can affect many species of animals, but in the United States, rodents and rabbits (particularly cottontails) are the important hosts. Various species of ticks (American dog tick, Lone Star tick, and the Rocky Mountain wood tick) are important maintenance hosts and biologic vectors.

Of the domestic animals, cats and dogs are the most commonly affected species, although clinical signs are more common in cats. There is evidence in endemic areas that many dogs seroconvert to *F. tularensis*, but clinical reports of illness are rare. In livestock, sheep are the most commonly affected species, but horses and calves have also been affected.

Francisella tularensis is highly infective. As few as 10 to 50 organisms inhaled or otherwise introduced into the body can cause illness in humans. The organism, besides surviving in its maintenance hosts and vectors, can survive for long periods of time (weeks to months) in water, soil, and dead animal carcasses. Dogs and cats become infected through the bite of an insect carrier or ingestion or contact with infected tissue.

People become infected usually by contact with the vectors (ticks, deerflies, and possibly mosquitoes) or through contact (bite or scratch) with an infected animal. Cats can infect people without showing clinical signs themselves. People have also been infected after mowing over dead rabbits with lawn mowers and inhaling the agent! Because it is so highly infectious, *F. tularensis* is classified as a Category A agent of bioterrorism. Clinical signs of tularemia may be diverse in people and animals. Tularemia in cats can result in symptoms ranging from non clinical infection to mild illness with lymphadenopathy and fever to severe overwhelming infection and death. Clinical signs in rabbits and rodents are lethargy and sluggishness, making these animals easy prey for cats and other predators.

Tularemia in humans results in any one of six syndromes, the most common of which is the ulceroglandular form, where a sore develops at the point of entry, accompanied by swelling in the regional lymph nodes. The most severe form is the primary pneumonic form, but it is relatively rare. Tularemia is diagnosed yearly in people in South Dakota. For the period January 1 to September 30, 2006, 4 individuals were reported to the SD Dept. of Health

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with Tularemia. This is even with the median number of cases in South Dakota over the past 5 years. All four cases were from central South Dakota.

After entry into the body, the organism infects and multiplies within macrophages, which then distribute it to organs throughout the body. Post-mortem findings in infected cats include hepatomegaly, splenomegaly, or both. Multiple white/grey foci of necrosis are commonly seen in the spleen, liver, and lungs. Lymph nodes are commonly enlarged. In areas where the disease is endemic, notably (but not limited to) central and southern South Dakota, veterinarians should consider tularemia as a differential when examining cats that have a fever with or without lymphadenopathy. Veterinarians are considered an occupation with increased risk of tularemia infection. If any fever or other signs of illness develop in any person exposed to an animal with tularemia, medical advice should be sought promptly. Pet owners should be encouraged to control ticks on their pet.

Treatment of tularemia is based on drugs known to be effective in people, and include the use of gentamicin, doxycycline, chloramphenicol, or enrofloxacin.

Examples of recent cases seen at SDSU's ADRDL:

1. Cat from west-central South Dakota, with a history of routine hunting of rabbits and rodents. Lately, a die-off of rabbits in the immediate area had been noted. Cat presented with signs of ataxia, dehydration, anorexia, and leukopenia.

Necropsy findings were caseous nodules in lungs, swollen mandibular and mesenteric lymph nodes, and multifocal splenic necrosis. Histopathology lesions included pneumonia, hepatitis, splenitis, lymphadenitis, and enteritis. Tissues were positive by culture and PCR for *F. tularensis*.

Later, a dead cottontail was submitted from the same locale. Lesions included splenomegaly and white pinpoint foci in the liver. Hepatitis, typhlitis (inflammation of the cecum) and pneumonitis was present on histopath. *F. tularensis* was isolated from lung, liver, kidney, and spleen.

2. Cat from southern South Dakota near the Missouri River. Its owner had reported losing other cats with similar signs over the past three years. Clinically, the cat was emaciated, icteric, and had diarrhea. Necropsy revealed swollen lymph nodes and icterus. Lymphadenitis and hepatitis were evident on histopath. Since only fixed tissues were submitted, a diagnosis of tularemia was made by immunohistochemistry.

3. Cat from central South Dakota that had "eaten a tame rabbit that had died". Clinical findings included swollen mandibular lymph nodes. Necropsy lesions included small tan foci and edema in the mesenteric lymph nodes. *F. tularensis* was confirmed by culture from lymph nodes and PCR.

Tularemia is a relatively rare but serious disease that has potential to cause disease in people through their contact with infected animals or insect vectors. Veterinarians are encouraged to keep this disease in mind, especially when presented with cats showing suspect clinical signs of fever and lymphadenopathy.

Resources:

1. Feldman KA. Tularemia. *J Am Vet Med Assoc* 2003; 222: 725-730.
2. SD Department of Health. September 2006 South Dakota Infectious Disease Summary (Provisional Dates). Available at: <http://www.state.sd.us/doh/ID/MonthlyReport/Sept06.pdf> Accessed Oct. 19, 2006.

Process Verified Programs (PVP's) Available to SD Calf Producers

Russ Daly, extension veterinarian; Nicole Kriz, pre-vet student; SDSU

The opening of the export market to Japan for cattle under 21 months of age may end up being an opportunity for some South Dakota cattle raisers to add value to their calf crop. In order to accomplish this, their calves need to be age verified through programs already in place through the USDA. In most cases, when cattle are age-verified through birth dates, they are also verified to a particular source (or farm), thus the term "age-and-source verified".

Veterinarians become involved with age and source verification in several ways. First and foremost, veterinarians are frequently involved in marketing decisions and are looked to for advice concerning adding value to their calf crop. Secondly, some "PVP's" (defined below) directly involve veterinarians in enrolling cattle in their programs. Some of these PVP's also track vaccinations and other health-related procedures in addition to age and source.

Currently, cattle with age and source verification are bringing a premium in many markets, variably estimated at \$25 per head or better in some cases. This premium is subject to many variables and is by no means a guarantee, but

depending on the market and buyer, may represent a tangible way to add value to a calf crop.

Background

Meat products eligible for export to Japan (or other countries) must meet a set of product requirements for that particular country called a **BEV**, or **Beef Export Verification**. The BEV requires that the suppliers of these products are part of a **QSA (Quality Systems Assessment)** program or **PVP (Process Verified Program)** approved by USDA that meets all of the requirements of the export market. For example, Japan will require that products be from animals 20 months of age or younger at harvest, and be from cattle individually identified and traceable back to the ranch of origin.

QSA vs. PVP

Quality Systems Assessments (QSA's) and Process Verified Programs (PVP's) are similar in that they may qualify cattle for export. Both QSA's and PVP's are subject to audits by the USDA, and as such, each program performs systematic

audits of its enrolled producers. In addition, USDA may audit individual producers in the course of their audits of the PVP.

QSA programs usually only document age and source verification. In most cases these QSA programs are administered by a particular packer or feedlot. As a result, enrollment in a QSA program limits a producer to marketing cattle only to that packer or feedlot.

PVP's on the other hand, often will verify age and source of cattle but also can make other claims about the product, such as all-natural claims, use of a certain health program, raised and fed in South Dakota, etc. When a PVP is established to include these other claims, the program needs to audit the producer's records relative to those claims also, not just age and source of the cattle. Many PVP's require on-site evaluations of newly enrolled producers before their approval in the PVP.

Many PVP's are independent of a particular marketing chain. This means the enrolled producer will have more flexibility in whom they can market their cattle to. As such, **enrollment in a PVP will be the preferred route for most South Dakota cattle producers.** In the chart that follows, we have attempted to list those PVP's available to our state's producers and outline some of their attributes. These programs are very dynamic at the present time and producers

and veterinarians should contact the PVP representative to confirm information as it changes.

While individual identification of animals is a necessity for most PVP's, there is no link between these programs and the National Animal Identification System (NAIS). NAIS, when implemented, will only be used as a disease trace-back mechanism and will not be accessible by private parties. Many – but not all – PVP's will require an electronic identification (EID) tag in the calf. This will enhance the downstream flow of information as the PVP-enrolled calf makes its way through the feeding-slaughter chain.

Many producers currently sign affidavits attesting to the age and source of their calves at marketing. It is important to realize that simple signing of these affidavits does not constitute enrollment in a particular PVP. PVP enrollment also includes the auditing and record evaluation functions.

PVP's Available to South Dakota Cattle Producers

The information in the chart that follows is current as of the date of publication and reflects information provided to us by the individual programs. Much effort was made to indicate accurate information, but since these are evolving programs, this information should be re-confirmed with the individual PVP before the decision to enroll is made.

All PVP's listed are similar in that they provide age and source verification of calves sold from a ranch. All of them have their own enrollment procedures, most of which require an on-site visit and examination of records. They vary as to requirements for electronic identification, cost of enrollment, and assistance provided in marketing calves. It is also important to realize that when programs sell tags to enrolled producers, some only sell tags in lots of 10 or 25, for example, while others may sell the exact number a producer needs.

PVP's listed were taken from the website <http://processverified.usda.gov>. Not every PVP listed on the website is included in this chart; only the ones that provide age and source verification and reasonably open to South Dakota producers and those with flexibility in marketing and feeding calves were included.

Other programs of note include:

- North Dakota Beef Cattle Improvement Association www.chaps2000.com A PVP open to North Dakota herds only.
- Power Genetics Passport Program www.powergenetics.com A PVP that includes health programs. Enrolled cattle need to be fed at a Power Genetics licensed feedyard.
- PM Beef Holdings www.pmglobal.com. A PVP for national beef.

Updated information on those and new PVP's will be maintained on the SDSU Veterinary Extension website, <http://vetsci.sdstate.edu/vetext>. Readers are also encouraged to keep updated by checking www.processverified.usda.gov

Special thanks to Tom Martinez, Northwest Vet Supply for review of materials.

Pieces and Parts

- **The latest information on Avian Influenza** can be viewed at: <http://sdces.sdstate.edu/avianflu/>. Topics covered include information for poultry producers, 4-H'ers, hunters, and those who just like song birds.
- **Submission Reminder: Ear Notches for BVD PI Testing.** Please remember, when submitting ear notches for BVD PI testing (ELISA or pooled PCR testing) that notches should be submitted dry in the red-top tube. The appropriate buffer solution will be added at the lab during the course of testing. At this time, we do not know the effects of other solutions on test results, so it is best to not send the notches in any sort of buffer or saline.
- **Submission Reminder: Serology.** In recent weeks, several samples requesting serology testing have been received in EDTA (purple-top) tubes. This prevents any serology test from being run on the unclotted blood. All of us have probably run out of red-top tubes in the field at least once or twice! If serum samples are collected in anything but a red-top or serum separator tube (for example, a rinsed purple-top), at the very least, care needs to be taken to ensure that the sample has indeed clotted before spinning down or submitting.
- **Veterinary website clarification from last issue.** Enter the online Compendium of Veterinary Products through the AVMA website at <http://www.avma.org/reference/default.asp>. AVMA members only.

Animal Health Matters

Program Name	Contact:	Enrollment requirements	Recording information	Enrollment cost**
South Dakota Certified Enrolled Cattle	SD Department of Agriculture: 1-800-228-5254 http://www.southdakotacertifiedbeef.com	Cattle must be born, raised, and fed in South Dakota; producer BQA certified; USDA premises number	Cattle enrolled through SDC website	\$ 100 annual enrollment + EID* tag (purchased separately) + \$ 0.50/head
Angus Source: American Angus Association	Vern Frey: (701) 537-5383 www.angussource.com	Minimum of 50% Angus-sired genetics; only cattle sired by reg. Angus bulls; EID* optional	Can be done on paper or electronically	RFID tag option \$3.25/set
				Visual tags @ \$1.00 ea.
AgInfoLink USA	(800) 282-0570 www.aginfoink.com	USDA premises number, EID	"Cattle Card": paper records sent to company	Cattle Card: \$4.25/head in lots of 10
			"Beef Link": on farm software program w/ weblink	Beef Link: \$3.25/head
Beef Concepts, Inc. - Bovittrak	Mark Schoenfeld: (507) 723-8575 www.beefconcepts.com	EID required	Can be done on paper or electronically	Annual enrollment=\$100 for herds <50; \$200 for herds >50. Animal Data Entry Fee = \$0.50/head; Tags \$1.85-\$3.25, producer can obtain tags on own
eMerge Interactive: "CattleLog"	Tim Colvin: (402) 376-4336 www.cattlelog.com	Cattle must be age audited before they leave the ranch of origin; EID required	CattleLog Data Services (CDS) = paper/manual input	CDS=\$3.00/head (includes EID tag, data entry, and data charges)
IMI Global Supply Verified Program	(866) 515-5797 www.supplyverified.com	EID required	Paper evaluation & enrollment	\$175 annual enrollment + EID button tag @ \$2.15 each
				\$175 annual enrollment + nested pair tag @ \$3.00 each
Merial/Boehringer Ingelheim SureHealth Program	Local veterinarian, Merial, or BI Animal Health representative; or 1-888-MERIAL1 http://surehealth.us.merial.com/index.html	Requires enrollment in SureHealth or I-Vac Program (use of specific Merial or BI health products)	Enrollment through veterinarians	\$150 + tags @ \$3.25/head
Pfizer Select Vac PVP	Local veterinarian or Pfizer Animal Health representative; or 1-800-760-9946 http://www.selectvac.com	Calves enrolled in Select Vac (use of specific Pfizer Animal Health vaccines in pre-conditioning); USDA premises number	Select Vac representative (oftentimes a veterinarian) will input data online	Varies by Select Vac representative (veterinarian): \$3.50 - \$3.75/head
Red Angus Association of America	Ann Holsinger: (940) 387-3502 www.redangus.org	50% or higher Red Angus (genetics); verify ranch of origin; birthdate by group age (age of oldest calf)	Initially producer/supplier is evaluated for Red Angus Assoc risk level, then approved or disapproved; info recorded at producer's discretion	Cost of Red Angus tags, sold in batches of 25 tags; visual tags = \$1.19 ea
				Nested visual/EID tags = \$3.25 ea
Samson, LLC	Scott Mueller: (402) 246-2084 or Jennifer Poindexter, SD rep www.samson-inc.com	EID tags optional; origin and birth records;	Presently paper or excel spreadsheet info submission; by 2007 calving season to be online tracking system	\$2.00/head + tag cost; Visual tag = \$1.30; optional EID tag = \$3.85
Sterling Solutions	John Nalivka: (541) 473-3266 www.sterlingtraceback.com	EID is optional, but ID tags purchased from Sterling Solutions must be used	Can be done on paper or electronically	\$300 set-up fee; Sterling Solutions tag cost (may cost as little as \$0.85/tag, or more)
Tri-Merit	Local veterinarian or Schering Plough Animal health representative; www.tri-merit.com	EID (can purchase on your own); Use of Schering Plough Animal Health products encouraged	Enrollment through veterinarians	Varies by enroller; cost of tag plus enrollment fee

*EID = Electronic identification

Program Name	Additional Costs/Equipment	Total Costs** to enroll 30 calves	Total Costs** to enroll 150 calves	Assistance in Marketing Calves?	Comments
South Dakota Certified Enrolled Cattle		\$115 plus 30 tags. (\$182.50 @ \$2.25 per tag)	\$175 plus 150 tags. (\$512.50 @ \$2.25 per tag)	Yes, website	Administered through AgInfo Link
Angus Source: American Angus Association	If needed, tag applicator \$17.50	RFID Tags = \$115.00	RFID Tags = \$505.00	Yes, website	
		Visual Tags = \$47.50 (including applicator)	Visual tags = \$167.50 (includes applicator)		
AgInfoLink USA		Cattle Card: \$127.50	Cattle Card: \$637.50		
	Beef Link: software free but need EID reader*	Beef Link: \$97.50	Beef Link: \$487.50		
Beef Concepts, Inc. - Bovitrak	Computer w/ web-browsing & security software; optional EID reader; reporting fees (situation dependent)	\$191.50 (@ 2.25 per tag)	\$657.50 (@ \$2.25 average per tag)	Yes	
eMerge Interactive: "CattleLog"	Tag applicator \$15.00; Optional Cattle Pro software, EID reader	\$90.00 + tag applicator \$15.00 = \$105.00	\$450.00 + tag applicator = \$465.00	CattleLog Listing Service	CattleLog also has (non-USDA approved) verification programs for: "no antibiotics," "no implants," "no ionophores," "no animal protein," "% black hide," and "BQA certified"; also can purchase optional software and upload data from farm.
IMI Global Supply Verified Program		\$239.50	\$497.50	Yes	
		\$265.00	\$625.00		
Merial/Boehringer Ingelheim SureHealth Program		\$247.50	\$637.50	Yes	Administered through IMI Global
Pfizer Select Vac PVP		\$105 - 112.50 (estimated)	\$525 - \$562.50 (estimated)	Yes, website	Administered through AgInfo Link
Red Angus Association of America	No additional equipment cost	\$59.50 (need to buy 50 tags)	\$178.50 for 150 visual tags		
		\$162.50 (need to buy 50 tag sets)	\$487.50 for 150 tag sets		
Samson, LLC	No additional equipment cost	Visual tags: \$99.00	Visual tags: \$495.00	Samson markets supplier/producer cattle to various packers	Also has verification processes for hormone or antibiotic free
		EID tags: \$175.50	EID tags: \$877.50		
Sterling Solutions		\$325.50	\$427.50	Works heavily with EA Miller Packing (Swift Company)	
Tri-Merit		Varies by enroller	Varies by enroller	Soon to come; website	Administered through GAM

** Costs: Please check with individual programs for updated pricing. Tag prices will vary: average tag price used where noted.

Animal Health MATTERS

SDSU Veterinary Science Department

Animal Disease Research & Diagnostic Laboratory

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Brookings, SD 57007-1396

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Brookings, SD
Permit 24

The SDSU Veterinary Science 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 Biochemistry 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.

Phone: (605) 688-5171 · Fax: (605) 688-6003 · Website: <http://vetsci.sdstate.edu>

Calendar of Events

November 9-10, 2006 -- Swine Disease Conference for Swine Practitioners, Scheman Building, Iowa State University, Ames, IA. (515) 294-6222; www.ucs.iastate.edu/online.htm.

November 30-December 2, 2006 – Academy of Veterinary Consultants Winter Meeting, Renaissance Denver Hotel, Denver, CO. (800) 353-7478; www.avc-beef.org

December 2-3, 2006 – Wyoming Veterinary Medical Association Annual Winter Meeting, Casper, WY. (208) 922-9431; www.wyvma.org

December 2-6 – American Association of Equine Practitioners Annual Convention, San Antonio Convention Center, San Antonio, TX. www.aaeq.org

February 1-3 – Minnesota Veterinary Medical Association Annual Mtg, Minneapolis Hilton, Minneapolis, MN. http://www.mvma.org/convention_info.asp

February 18-22, 2007 – Western Veterinary Conference, Mandalay Bay Convention Center, Las Vegas, NV. www.wvc.org.

IN THIS ISSUE

Head/Director's Message

Animal Health Surveillance Demands Continue to Grow 1

Diagnostic News

Combined North American/European-like / LV “Multi-PRRSV Real-Time PCR Assay..... 1

Antemortem Diagnostics for Bovine Respiratory Disease: Obtaining Bronchoalveolar Lavage

Samples..... 2

Holiday Hours..... 2

Extension News

Tularemia Cases Diagnosed at SDSU ADRDL: September 2005 – October 2006..... 3

Process Verified Programs (PVP’s) Available to SD Calf Producers 4

Pieces and Parts 5

Calendar of Events 8

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