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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



Vol. 9, Issue 1

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Head/Director's Message

David H. Zeman, DVM, PhD

Quality System Laundry

The ADRDL has been accredited by the American Association of Veterinary Laboratory Diagnosticians (AAVLD) since the onset of their accreditation program over 30 years ago. To my knowledge, the AAVLD veterinary diagnostic laboratory accreditation program is the oldest in the world, and has promoted excellence and progress in veterinary laboratories in North America. However, the accreditation program is undergoing a major 'makeover'. The new accreditation standard is more detailed, requires more documentation, and is fully compatible with international expectations as put forth by the World Animal Health Organization (OIE). The World Trade Organization (WTO) authorizes the science based OIE to set the standard in these matters, because the results generated in veterinary diagnostic labs have a direct impact on international trading of animals and animal products.

The foundation of the new accreditation expectation is the laboratories' *Quality System*. The Quality System's purpose is to promote quality work by following these simple principles:

- #1 Do it right. The right test and the right technique.
- #2 Write down how you will do it.
- #3 Do what you write.
- #4 Check the quality system regularly.

I call checking the system, *doing quality system laundry*. At times to our clients this may appear as overkill, such as repeating several tests at no additional charge due to a reagent recall when there is very little expectation that the end results will change. At other times, it is catching significant errors such as an animal ID number on the wrong line. In either case, doing the quality system laundry will be an open and transparent process. Even though we would all rather do our laundry in private, the new Quality System mandates integrity and informing the client of any issue that *might* impact the final test result and therefore the client's interpretation.

Our Quality System Manager is Rajesh Parmar. Quality System management is his full-time duty. Many communications regarding *quality system laundry* will come with his name on it. As you read these communications, I hope that it bolsters your confidence that the ADRDL's quality system is fully engaged and driving us to continuous quality improvement. I guarantee that laboratories not showing evidence of *quality system laundry* are piling up *dirty laundry* somewhere. Thank you for being our clients and as always it is a pleasure to promote animal health together!

Diagnostic News - SDSU ADRDL

Submission of Rabies Specimens: SDSU ADRDL

A. To meet CDC guidelines for rabies testing, it will be necessary to submit the: → **ENTIRE brain** → **with the BRAINSTEM** → **FRESH** to the SDSU ADRDL (or any other test lab). This will allow for the testing of both sides of the brain and brainstem. This negates previous recommendations by the ADRDL to submit half of the brain in formalin. The ADRDL will now formalinize the brain after it arrives at our laboratory. Submit the fresh brain in a Styrofoam insulated cardboard shipping container with

adequate ice to keep cold enroute to the lab. Do not freeze the fresh brain.

B. Fill out the **standard ADRDL submission form**, including the rabies section. You can download it from <http://vetsci.sdstate.edu/forms/generalform.pdf>. A veterinarian must be listed as the referring DVM.

**Submit whole fresh brain,
with brainstem**

C. As always, the laboratory will **not accept LIVE animals** for rabies testing. To minimize potential exposure, animals should be euthanized prior to transport to the laboratory. Whole bodies, complete heads, or removed brains are all acceptable specimens at the ADRDL. Our lab personnel will remove brains upon arrival, at no additional charge.

D. Since the FA test is so quick and reliable, after hours testing is rarely required anymore. The FA test is completed the same day, if samples arrive before 2 PM. Lab results are phoned to the referring veterinary clinic. Testing after hours, weekends, or holidays is not available at the ADRDL.

E. The ADRDL is open 8 AM to 5 PM Monday through Friday, except holidays. A **SPECIMEN DROP-OFF COOLER** is accessible to the public 24 hours per day. Samples can be driven to the lab on nights or weekends, and left in the cooler for testing the next working day. The cooler is adjacent to the loading dock near the NE corner of the lab. The on-call diagnostician can be reached at 690-1576.

Holiday hours:

Monday, May 29 – Memorial Day
Tuesday, July 4 – Independence Day

Extension News - SDSU ADRDL

Equine Herpesvirus Infections – More widespread or more recognized?

Russ Daly, DVM, Extension Veterinarian, SDSU

Recent highly-publicized cases of neurologic disease in horses have brought equine herpesvirus (EHV) to the news in recent months. Facilities in Kentucky, Maryland and West Virginia have been affected by quarantines due to the disease, and reports of affected animals have been received in recent weeks from stable operators in western South Dakota.

Each year, neurologic diseases attributed to EHV are reported to the South Dakota Animal Industry Board. As is the case with the disease nationwide, it is unclear whether these cases represent an actual increase in incidence or an increase in awareness and reporting of the disease. Equine herpesviral infection is a reportable, but not quarantinable, disease in South Dakota.

The Agent

Two antigenically diverse strains of EHV are responsible for the major syndromes associated with the virus: EHV-1 and EHV-4. These herpesviruses are enveloped, which has implications for choosing appropriate disinfectants (see “Management” below). EHV generally does not survive well outside the body, so close contact is usually necessary for transmission.

Pathophysiology of EHV

Both strains of EHV are ubiquitous in horses throughout the world. Originally, primary infection of horses with EHV was thought to occur around weaning time, when virus neutralizing antibody levels from colostrum had declined. However, there is new evidence that infection of young horses may occur much earlier. Following an EHV-1 abortion storm on a British farm, virus was isolated from

healthy foals aged 7-9 days of age. These foals also had high levels of colostral antibody, implying that transfer of maternal antibodies was not sufficient to prevent infection (but did prevent clinical signs) in these foals.

In any event, after primary infection, up to 80% of the infected horses will develop latent infections. Viral latency involves the lymphocytes and trigeminal ganglion. In these horses, the virus may lay dormant for life or recrudesce after times of stress or other immunosuppression. This reactivation creates the opportunity for recurrent disease and shedding to susceptible individuals.

Horses with reactivated latent infections, therefore, are possible sources of infection for susceptible animals. Contact with nasal and respiratory secretions, and, in the case of abortion, with aborted tissues and fluids, will transmit the agent. Contaminated stalls, tack, feeding and watering equipment are fomites that can contribute to spread of EHV within a premise.

The incubation period for EHV-related infections is short: three to seven days. The site for primary viral replication is the upper respiratory tract. Following infection of the nasal epithelium, the virus becomes intracellular and is rapidly dispersed via infected lymphocytes to sites of secondary replication, such as the pregnant uterus or the spinal cord.

The Syndromes

Equine herpesvirus causes disease in three distinct syndromes:

1. **Respiratory Infection.** Also known as “rhinopneumonitis,” this syndrome may be mild or inapparent in animals that have had previous infections or vaccination. A common manifestation of the respiratory effects of EHV is in younger horses (weanlings) in horse-dense areas. These outbreaks have generally been attributed to EHV-4.

Symptoms include fever, serous nasal discharge, malaise, cough, submandibular and retropharyngeal lymph node

swelling. Sometimes a “diphasic” fever is noted; the second phase of fever coincides with the advent of a cell-associated viremia, in which virus travels through the bloodstream inside lymphocytes. Secondary bacterial infections are common following primary infection.

On a tissue level, infection with EHV-4 causes a rhinopharyngitis and tracheobronchitis. The virus invades and replicates in respiratory tract epithelium and associated lymph nodes. Gross lesions include hyperemia and ulceration of respiratory epithelium and multiple hemorrhagic foci in lungs.

2. **Abortion.** EHV infection generally is associated with late-gestation abortion (7-11 months of gestation). Abortion is sometimes noted several weeks to months after a clinical or subclinical infection with EHV-1, but often occurs with no impending signs. It is speculated that the decreased cell-mediated immunity of pregnant mares in late gestation allows the virus to more readily incorporate into cells (lymphocytes) and be transported transplacentally via the bloodstream of the mare.

In addition to abortions, weak full-term foals may be born with full-blown viremia. These foals do not generally survive more than a few days, succumbing to the primary effects of the virus or secondary infections. Lesions in affected foals include pulmonary edema, effusion of pleural fluid, multifocal hepatic necrosis, and petechiation of the myocardium, adrenals, spleen, and thymus.

3. **Neurologic Disease.** Neurologic signs are the noteworthy component of the recent EHV infections in the news and are significant to the affected individual animals, but are infrequent sequelae of EHV-1 infections. Specific strains of EHV-1 have been implicated when neurologic signs are associated with EHV. There is speculation that this syndrome occurs more frequently in mares that have weathered abortion storms, or in individuals that have experienced respiratory outbreaks. Symptoms may begin as mild incoordination or lameness, progressing to posterior paresis and paralysis, recumbency, and loss of tail and bladder function.

Strains of EHV-1 that are implicated with neurologic signs affect vascular endothelial cells, especially in the central nervous system. This results in an immune-mediated vasculitis, progressing to secondary infarction and hemorrhage throughout the brain and spinal cord. Often, however, there are no gross lesions in the CNS or only minimal hemorrhage in the meninges, brain, and spinal cord parenchyma. Neurologic symptoms in the animal correspond with the specific location in the CNS affected by the virus.

Diagnosis of EHV Infection

The latency and cell-related nature of EHV infection make definitive diagnosis challenging. Generally, PCR or virus isolation is performed on nasopharyngeal swabs to confirm diagnosis. Virus isolation may also be attempted on buffy coat samples, but usually this requires examination during a narrow window of viremia. Paired serology on individuals may be attempted, but may be unrewarding especially for abortion cases, since antibodies are short-lived

and may have been present and in abortion cases, the virus may be isolated or demonstrated in tissue. Neurologic forms of EHV infection are often presumptively diagnosed on clinical signs. Respiratory symptoms of EHV cannot be differentiated from those of influenza or other causes on the basis of clinical signs.

Treatment and Outcome

Treatment of any of the syndromes associated with EHV has been difficult at best. In most cases, supportive treatment is the only option. Secondary respiratory infections can be treated with appropriate antibiotic and adjunctive therapy. Supportive care also is indicated for the neurologic form of EHV, and it has been noted that animals mildly affected with this form may eventually recover. Severely affected animals, however, usually progress to the point in which euthanasia is the only option.

Immunity to EHV

Differences exist in the effectiveness and duration of immunity among the different syndromes associated with EHV. Immunity to respiratory infection following natural exposure is relatively robust, including both humoral and cellular components, but is relatively short-lived (about three months). Immunity following abortion disease generally is considered of longer duration than that following respiratory infection, but is less predictable. It has been noted that most mares affected with EHV abortion will conceive and deliver normal foals in the subsequent gestation. Little is known about immunity to the neurologic form of EHV, but it is widely recognized that vaccination with current products will not protect against this syndrome.

Vaccination

Considering the pathogenesis of EHV infections, it has been suggested that three compartments of the immune system are important in prevention of clinical effects of this group of syndromes: 1) Mucosal immunity, with antibodies present to neutralize virus in the body’s portals of entry; 2) Viral neutralizing antibody in the bloodstream to combat free infectious viral particles; and 3) Cell-mediated processes that will lyse cells infected with herpesvirus, thus preventing the cell-associated viremia so important for dissemination of the virus to the target organs. A widely effective vaccine will provide immune stimulation of all these components; current products available, however, fall short of these goals. Current vaccines generally are regarded to produce high levels of circulating antibody, but only provide partial stimulation of the cell-mediated immune system.

Inactivated and live attenuated vaccines for EHV-1 and EHV-4 are available. An inactivated viral vaccine (Pneumabort-K®, Fort Dodge Animal Health) is marketed for prevention of equine abortion and is labeled to be given at months 3, 5, 7, and 9 of gestation. Currently there is no vaccine labeled for aid in prevention of the neurologic signs associated with EHV. General recommendations for vaccine use include initial vaccination of foals at 3-4 months of age,

followed by a booster in 4-8 weeks. Boosters usually are recommended every 3-6 months due to the short duration of immunity they impart.

Over the past 25 years, many studies have attempted to characterize the efficacy of commercial vaccines against EHV-1. Not all vaccines have published data supporting efficacy, and studies on the same vaccine sometimes have produced inconsistent results. The ubiquitous nature of the virus and propensity for the virus to become latent makes it difficult to study groups of animals that are similar immunologically. A recent review of EHV vaccines was unable to draw any conclusions about vaccine efficacy. Considering the current body of evidence, however, there is strong evidence that vaccination can provide a high degree of clinical and virological protection in horses after experimental and natural exposure to EHV-1. It is noted that the widespread use of EHV-1 vaccine (and also management changes) have contributed to a decrease by 75% in the incidence of abortion storms in equine breeding herds. This is likely due to the decrease in amount and duration of virus shed in vaccinated animals.

Future vaccines for the successful immunologic control of EHV infection will need to produce: 1) a high level of persistent neutralizing antibody in the upper respiratory mucosa; 2) a high level of persistent neutralizing antibody in the systemic circulation; and 3) an expanded population of virus-specific T-helper lymphocytes in the mucosa and bloodstream.

Management Practices

Biosecurity refers to practices implemented to prevent introduction of a disease agent into a susceptible population. Because EHV becomes latent in a high proportion of infected animals, this may be problematic. However, certain management procedures can limit the chance that an animal shedding large amounts of virus may enter a facility.

1. Isolation. When new horses are purchased or added to a facility, or returning from an outside facility, a strict 3-4 week isolation period should be enforced. This is especially important when pregnant mares are present in the home facility. Reducing stress (hauling, environment, social stress) will decrease the chance of recrudescence of latent EHV infections. Animals entering a population should be vaccinated between seven and 90 days prior to entry.

2. Group events. Whenever possible, health certification and vaccination requirements should be enforced when staging events such as horse shows, trail rides, ropings, etc.

3. Disinfection. Equipment, trailers, and other inanimate objects that were in contact with outside horses should be disinfected with the appropriate product. As previously mentioned, EHV is an enveloped virus, and a disinfectant should be chosen with the appropriate activity. One of the most effective classes of disinfectant against enveloped viruses are in the “aldehyde” family. There are combination products available that include this type of chemical, including DC&R® and Synergize®, among others.

Biocontainment refers to practices put into place following an outbreak of disease to prevent further damaging

effects. When infected animals are identified within a facility, the following steps should be considered:

1. Isolation. Affected animals should be isolated from the rest of the herd.

2. Quarantine. Animals should be quarantined to the affected premise for 21 days following recovery of the last clinical case.

3. Disinfection of premises and equipment contacted by infected animals.

References:

Paradis MR. Equine respiratory viruses. In: Smith BP, ed. *Large animal internal medicine*. St. Louis: Mosby, 1996; 587-588.

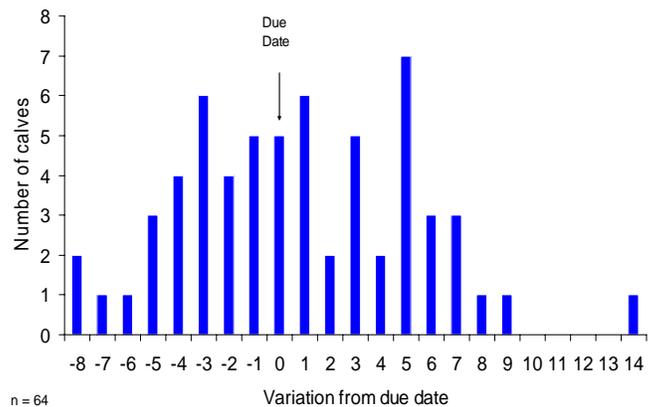
Crabb BS, Studdert MJ. Equine rhinopneumonitis (equine herpesvirus 4) and equine abortion (equine herpesvirus 1). In: Studdert MJ, ed. *Virus infections of equines*. Amsterdam: Elsevier, 1996; 11-37.

Kydd JH, Townsend HGG, Hannant D. The equine immune response to equine herpesvirus-1: The virus and its vaccines. *Vet Immunol Immunopathol* 2006; (In press).

Calving Date Variation in Beef Cows: An Illustration

George Perry, PhD, Extension Beef Reproductive Specialist, SDSU

This figure shows a group of mature cross-bred cows (n = 64) that were all inseminated within a couple of hours of each other and all conceived to the fixed-time insemination protocol. Day 0 is the expected due date at 285 days from insemination. As can be seen from the distribution of calves born, even when a group of cows all conceive on the same day calving can be distributed over about a 3 week period.



Editors Note: In practice, I would have found this diagram useful in illustrating to clients that gestation length in cows is subject to the same biological variation present in the rest of nature. Early calves or late calves relative to a due date are much more the norm instead of the exception.

Natural and Organic Beef

Tom R. Troxel, Extension Beef Cattle Specialist, University of Arkansas

What is “natural” or “organic” beef? As naturally and organically grown cattle become more common in the marketplace, so do questions from beef producers and consumers. Beef producers are asking questions about the production of natural and/or organic beef and the marketing opportunities that may be available. Consumers are asking questions about the healthfulness and advantages of natural and/or organic beef.

What Is Natural Beef?

The natural beef market has developed into a legitimate marketing option with incentives attractive enough to justify consideration. Generally, “certified natural” cattle have received premiums ranging between \$4 to \$8 cwt. for calves and \$2 to \$4 cwt. for feeder cattle, depending upon location, quality and quantity. Although the increase in selling price is considered a “premium,” often this premium is necessary to offset losses in productivity associated with required management practices to produce natural beef. In some cases, these premiums have been consistent and high enough to exceed losses in productivity, making cattle producers take notice.

Before a cattle producer participates in a natural beef program, it’s important to have an understanding of the natural beef requirements for the branded program they are interested in. Over a dozen natural beef programs are in existence, each with its own set of production requirements. Natural programs are very different than organic programs in several ways. Although a natural beef program may qualify for USDA process verification, such programs are actually administered and regulated by the company or organization that owns the brand name, not the USDA. Natural beef is produced to fit into a specific branded beef program, and therefore, the owner of the brand sets the requirements and is responsible for regulating compliance. This makes the natural beef program’s integrity extremely important.

To use the term “natural” on a food label, the USDA requires only three simple things: (1) the product must be minimally processed, (2) the product cannot contain any artificial ingredients and (3) the product cannot contain any preservatives. The USDA has no specific restriction on management practices during the life of the animal.

Table 1 lists the general production and certification requirements for a natural beef program. If a beef producer is considering a natural beef program, it is advisable that specific program requirements be reviewed. For example, some natural beef programs only restrict antibiotic and implant use during the last 100 to 120 days prior to harvest.

What Is Organic Beef?

The U.S. Department of Agriculture has put in place a set of national standards that food labeled “organic” must meet, whether it is grown in the United States or imported

from other countries. Organic meat, poultry, eggs and dairy products come from animals that are not given antibiotics or growth hormones. Organic food is produced without using most conventional pesticides, fertilizers made from synthetic ingredients or sewage sludge, or bioengineering or ionizing radiation. Before a product can be labeled “organic,” a government-approved certifier inspects the farm where the food is grown to make sure the farmer is following all the rules necessary to meet USDA organic standards. Companies that handle or process organic food before it gets to your local supermarket or restaurant must also be certified. Farms and handling operations that sell less than \$5,000 per year are not required to be certified by USDA. Although exempt from certification, these producers and handlers must abide by the national standards for organic products and may label their products as organic.

USDA makes no claims that organically produced food is safer or more nutritious than conventionally produced food. Organic food differs from conventionally produced food in the way it is grown, handled and processed.

Along with the national organic standards, USDA has developed strict labeling rules to help consumers know the exact organic content of the food they buy. USDA developed the *USDA Organic* seal (Figure 1) that tells the consumer a product is at least 95 percent organic. Other truthful claims, such as free-range, hormone-free and natural, can still appear on food labels, but only certified organic food can use the *USDA Organic* seal. For more information on the USDA organic standards, go to <http://www.ams.usda.gov/nop>.

Producing Organic Beef

To produce, market, label or advertise beef using the term “organic,” producers and processing companies must each be certified by the USDA as organic producers. This is a highly involved process that requires tremendous time, effort and documentation. To qualify for an organic label, the following requirements must be met:

- Animals have to be produced and processed by a USDA certified organic farm and processor.
- The animals must be free of any antibiotics or growth hormones.
- They must be free of mammalian or poultry protein or by-products. Feed must not have been exposed to pesticides, fertilizers made from synthetic ingredients or bioengineering.
- Animals for slaughter must be raised under organic management from the last third of gestation.
- Producers are required to feed livestock agricultural feed products that are 100 percent organic but may also provide allowed vitamin and mineral supplements.
- In order to produce 100 percent organic feed, the land will have no prohibited substance applied to it for at least three years before the harvest of an organic crop.

- The use of genetic engineering, ionizing radiation and sewage sludge is prohibited.
- Soil fertility and crop nutrients will be managed through tillage and cultivation practices, crop rotation and cover crops, supplemented with animal and crop waste materials and allowed synthetic materials.
- Preference will be given to the use of organic seeds and other planting stock, but a producer may use nonorganic seeds and planting stock under specified conditions.
- Crop pests, weeds and disease will be controlled primarily through management practices including physical, mechanical and biological controls.
- When these practices are not sufficient, a biological, botanical or synthetic substance approved for use on the National List of Allowed and Prohibited Substances may be used.
- Preventive management practices, including the use of vaccines, will be used to keep animals healthy.
- Producers are prohibited from withholding treatment from a sick or injured animal; however, animals treated with a prohibited medication may not be sold as organic.
- All organically raised animals must have access to the outdoors, including access to pasture for ruminants. They may be temporarily confined only for reasons of health, safety, the animal’s stage of production or to protect soil or water quality.

Handling Standards

All nonagricultural ingredients, whether synthetic or nonsynthetic, must be included on the National List of Allowed Synthetic and Prohibited Non-Synthetic Substances. Handlers must prevent the commingling of organic with nonorganic products and protect organic products from contact with prohibited substances. In a processed product labeled as “organic,” all agricultural ingredients must be organically produced, unless the ingredient(s) is not commercially available in organic form.

In the case of mislabeled organic food, the penalty can be as high as \$10,000 per violation. Aside from monetary penalties for falsely representing a product, there are ethical and moral implications. The beef cattle industry works hard to successfully assure consumers that beef is a safe and wholesome product that is produced by a trustworthy industry. The entire beef cattle industry would receive a black eye if a natural or organic beef product were proved to be something other than labeled.

Summary

Natural Beef:

- Natural beef programs are largely defined and regulated by the company that owns the brand.
- USDA requirements for natural beef are relatively simple – minimum processing, no artificial ingredients and no preservatives.

- USDA has no specific restrictions on management practices during the life of the animal.

Organic Beef:

- Producers and processing companies must be certified by the USDA, which requires much time, effort and documentation.
- Production and handling guidelines and restrictions must be followed for products to carry the *USDA Organic* seal.

The natural beef and, to a lesser extent, the organic beef markets will continue to grow in the market share for at least the next few years. The opportunity for some producers to capture greater value for their beef cattle by modifying their management practices to meet certain certified natural beef requirements will continue. Beef cattle producers must carefully weigh the advantages and disadvantages of participating in a natural program or a certified organic program for their own operation.

Reference

U.S. Department of Agriculture, The National Organic Program, www.ams.usda.gov/nop.

Cattle-Fax Update, Cattle-Fax, Englewood, Colorado.

DR. TOM R. TROXEL is Extension beef cattle specialist and section leader - animal science with the University of Arkansas Division of Agriculture, Cooperative Extension Service, in Little Rock.

Table 1. Requirements of Natural and Organic Beef Programs^a

	Typical Natural Beef Program	USDA Certified Organic Beef
Antibiotic use	Not Allowed	Not Allowed
Ionophore use (such as Rumensin)	Typically Not Allowed	Not Allowed
Implant use	Not Allowed	Not Allowed
Feed containing mammalian protein or by-products	Not Allowed	Not Allowed
Feed from non-organic sources (such as fertilized pastures)	Typically Allowed	Not Allowed
Other Restrictions	Each Program Varies	Extensive
Certification	Producer Signs an Affidavit	USDA Certification
Regulation/Auditing	Branded Program	USDA Audits

^aSource: Cattle-Fax

Natural Beef in the Feedlot: Risk and Return to Feeder Calf Premiums

Turk Stovall, ORIgen, Inc.

- Significant premiums can be obtained by producing and marketing cattle through natural beef programs.
- However, if programs are poorly-executed, premiums may easily be replaced with losses.
- Natural beef industry's standard: "never-ever" programs...
 - Natural cattle required to "never-ever" have received antibiotics or hormones of any kind from birth to harvest.
 - As such, if a scouring calf has been treated with antibiotics as a neonate, that animal can no longer be represented as "natural".
 - For most natural beef programs, Rumensin® and Bovatec ® are considered antibiotics.
 - Likewise, MGA is also disallowed because it is a hormone.
 - Important for producers to realize: Vaccines are NOT antibiotics, and are extremely important to the health of natural cattle.
- Many ranches already produce "natural beef," but do not market calves as such, due to failure to identify or record calves treated with antibiotics.
- Other ranches simply fail to represent their natural calves as "natural."
- Some producers prefer to implant calves and are removed from the program for that reason.
- Premiums:
 - At any given sale, natural cattle generally always bring a premium over non-naturals of like class and type.
 - Premiums will fluctuate over time and at times may be non-existent.
 - At terminal markets, natural programs create many unique selling opportunities for finished cattle:
 - Feedlot owners may be offered unique pricing arrangements: forward contracts with windows, live plus premiums, etc., etc.
 - These arrangements help feedlot owners in making better buying decisions for themselves and retained-ownership customers.
 - Average premiums over cash market will generally be \$5 to \$15 per hundredweight.
 - At different times of the year, appropriate natural fat calves may be difficult for buyers to find, driving up available premiums.
 - Fat cattle premiums will be high, causing feeder calf premiums to be high.
- Risk:
 - As with any business investment with potential high returns, a level of risk accompanies that potential.
 - Natural cattle arguably have the highest "value at risk" compared to most branded beef programs.
- Health Risks:
 - Total health management at the ranch level is crucial to the success of natural beef in the feedlot.
 - Vitally important are:
 - Vaccines and biosecurity
 - Nutrition and minerals
 - Weaning on the ranch
 - Reason for importance: The cost of a treated calf is very high in natural beef programs. Cost depends on these variables:
 - Salvage value (buying natural feeders at a premium and selling them on the commodity cash market)
 - Opportunity cost (at what point of the feeding phase is the animal treated and removed? Can the animal be put into another program? What was the animal's potential had it been raised conventionally from the start?)
 - Lost performance (while animal has been fed under natural protocols)
 - Health management and assessment is one of the main drivers of feeder calf premiums when comparing natural cattle to conventional cattle of the same class and type. This creates opportunities for veterinarians in managing the health of these animals.
- Cost of Gain:
 - Feedlot performance suffers from the absence of implants, MGA, and ionophores.
 - Results in an average \$0.10 per pound increase in cost of gain.
 - Inability to feed ionophores may result in an increase in metabolic problems (acidosis, bloat), also increasing the cost of gain.
- Mishaps:
 - Transactions may be "messy" when affidavits are not received as promised, missing animals that have been treated, or lost identification.
 - Feedlots will not sell natural cattle with any chance they may have been treated.
- All of these factors influence the amount of risk (and thus the amount of premium) a cattle buyer is willing to accept. Natural feeder premiums are relative to the feedlot's overall assessment of how much value they are putting at risk.
- The industry is at the dawn of higher demand for natural cattle while new major players come to the table, creating new markets domestically and abroad.
- It will be the progressive cattlemen that will reap these rewards at a sustainable rate by assessing their risk while meeting supply demands.

Excerpted from: Presentation at James Bailey Herd Health Conference, Brookings, SD, February 18, 2006; and Proceedings, The Range Beef Cow Symposium XIX, Rapid City, SD, December 6-8, 2005.

Animal Health MATTERS

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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

April 6-8, 2006 – Academy of Veterinary Consultants Spring Meeting, Marriott DFW, Irving, TX. www.avc-beef.org

June 4-6, 2006 – South Dakota Veterinary Medical Association Summer Meeting, Pierre, SD. For more information call 605-688-6649.

July 15-19, 2006 – American Veterinary Medical Association Annual Convention, Hawaii Convention Center, Honolulu, HI 847-925-8070.

August 13-16, 2006 – South Dakota Veterinary Medical Association Annual Meeting, Sioux Falls, SD. For more information call 605-688-6649.

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