

Diagnostic Insights

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KANSAS STATE VETERINARY DIAGNOSTIC LABORATORY

Accredited by the American Association of Veterinary Laboratory Diagnosticians

July, 2012

A Case of Plant Poisoning in Beef Calves

In June a private practitioner called about a Kansas beef producer who had reported multiple sudden deaths in a group of suckling fall-born calves.

Initial calf tissues examined by KSVDL pathologist, Dr. Kelli Almes, revealed the calves had hepatic lipidosis (fatty liver) suggesting they were not sudden death cases. A field investigation was initiated by KSVDL staff and the private practitioner.

The investigation revealed the cows were in excellent body condition, and the calves were growthy. All cows and calves appeared healthy. The pasture had been experiencing drought conditions for two years. The veterinarians walked the pasture and discovered sparse grass available for grazing, with evidence of cows and/or calves having grazed multiple weed types.

The weeds were collected and brought back to the KSVDL where one weed, *Senecio spartioides*, was identified by toxicologist Dr. Deon van der Merwe as a toxic plant.

A subsequent set of tissues from a dead calf, examined by KSVDL pathologist Dr. Brad DeBey, revealed hepatic lesions suggestive of *Senecio sp.* consumption.



Senecio spartioides

The producer was advised to move the cattle elsewhere but elected to supplement grazing with sorghum sudan hay. Since supplementation (3 weeks ago), no further health issues have occurred.

Several lessons were learned from this case:

- Cattle can perform (maintain body condition and milk) well when grass is limited but certain weeds are abundant.
- Some *Senecio sp.* contain pyrrolizidine alkaloids which are bitter and normally make the plant unpalatable, but in areas of poor grass production, cattle will consume this plant.
- It may be possible to provide feed supplementation to reduce the likelihood of consuming toxic plants.
- The value of a private practitioner's involvement in herd health issues cannot be overstated, and multiple submissions increase the probability of a diagnosis.

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Inside this issue:

NEW KANSAS BOVINE TRICH REGULATIONS	2
KSVDL BOVINE ANAPLASMOSIS STUDY	2
MARKING SURGICAL MARGINS WITH DYE	3,4
BRUCELLA TESTING CHANGES	4
CONTINUING EDUCATION	5
HOLIDAY SCHEDULE	5

New Kansas Bovine *Tritrichomonas* Regulations

A summary of the Trich testing regulations put forth by the Kansas Department of Agriculture (KDA): Division of Animal Health scheduled to go into effect this fall are:

- A negative Trich test result must have occurred within 60 days before bulls can enter Kansas for breeding purposes.
- Trich samples must be collected by an accredited veterinarian who has participated in a KDA-approved training session. Re-accreditation must occur every 5 years.
- Positive bulls must be sold for slaughter.
- Bulls over 18 months of age changing ownership **IN** Kansas by private sale, public sale, lease, trade or barter shall have a negative Trich test within 60 days prior to change of ownership.
- Trich negative test status = 1 polymerase chain reaction (PCR) completed at an accredited laboratory.
- For regulatory purposes, culture will no longer be a testing option.
- A bull may be sold at a livestock market for breeding purposes if:
 - * The bull is retained at the market at the owner's expense until an official negative test is resulted—a negative test result will be communicated to the Animal Health Commissioner who will then release the bull.
 - * The livestock market must possess facilities which are adequate to house bulls and keep them separate from females of breeding age during test quarantine periods. (This facility must be approved by the Kansas Department of Agriculture: Division of Animal Health.)

Bovine anaplasmosis study:

Last week the KSVDL sent letters out inviting practitioners, who have submitted samples for Anaplasmosis analysis in the last 5 years, to participate in a study.

The researchers are investigating Anaplasmosis in Kansas beef herds. Specifically, we are interested in geographical patterns and herd-associated risk factors.

If you did not receive a letter and you believe you might qualify for this study, please contact Dr. Gregg Hanzlicek @ 785-532-4853 or gahanz@vet.k-state.edu

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Marking Surgical Margins with Tissue Dye

Jamie N. Henningson DVM, PhD, DACVP

Margins can be a frustration for veterinarians and pathologists. There are several tumor types that are invasive and require wide margins, such as mast cell tumors.

Marking tumor margins with tissue dye can identify deep, lateral, cranial, caudal, dorsal, ventral and/or medial. Well marked surgical margins allows the pathologist to identify, in the case of incomplete surgical excision, which direction that excision is incomplete. This information provided by the pathologist allows the clinician to concentrate further surgical resection in a particular direction.

A good way to identify margins is by marking margins with tissue dyes, which has the following advantages:

- The dye is permanent and does not have to be removed for routine histology processing; therefore, maintaining orientation.
- The procedure is simple.
- It does not interfere with histological evaluation.

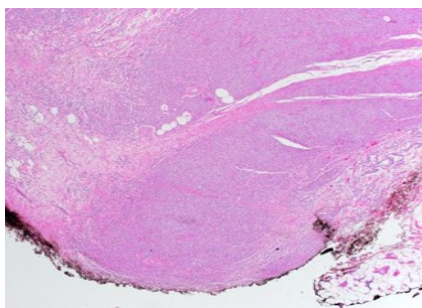


Figure 1. Black tissue dye marks the surgical margins in a mast cell tumor that was applied soon after surgical removal to the unfixed tissue.

Materials needed to paint with tissue marking dye:

- Cotton swab or wooden applicator stick for each color.
- Tissue marking dye.
- Acetone or Bouin solution (Tissue marking can be done without these, but they can speed up drying and therefore lead to faster fixation).
- 10% Neutral buffered formalin.
- Inexpensive and a bottle of dye can last for several years.
- Works on both fixed and unfixed tissue, but **works better on unfixed tissue.**
- The surgical margins are clearly distinguished for trimming of margins and for histological evaluation of tumor margins.

Better results occur if the tissue marking is completed at the time of surgery.

This will allow the referring veterinarians to better identify the margins of concern.

How to paint (ink) tumor margins:

1. Make sure to record which color corresponds with which margin.
2. Gently blot the biopsy dry concentrating on the margins.
3. Select the dye color.

Note: Dye can be diluted 1:1 with isopropyl alcohol.

Isopropyl alcohol can also be added to 10% neutral buffered formalin when submitting fixed tissue through the mail in the winter months. Specimens that freeze result in freezing artifact, which can hinder histopathological evaluation.

1 part isopropyl alcohol: 9 parts 10% neutral buffered formalin.

4. With a wooden applicator stick or cotton swab, paint the margins.
5. Do not pour the dye on the margin; just paint gently applying evenly.
6. Do not use excessive ink.
7. Do not section the biopsy with wet ink as it will carry ink onto the cut surface of the specimen possibly making interpretation of margins difficult.

Repeat steps 3 and 4 until all margins have been identified (for example: lateral=blue, deep=black, cranial=yellow, etc). Acetone or Bouin solution may be applied to speed up drying (optional).

8. Allow the paint to air-dry for 5-10 minutes then immerse biopsy in 10% neutral buffered formalin or other routine fixative solution. Some of the dye will dissolve in the fixative, which is okay.
9. Record on the submission sheet to indicate painted margins and which margins are which color.

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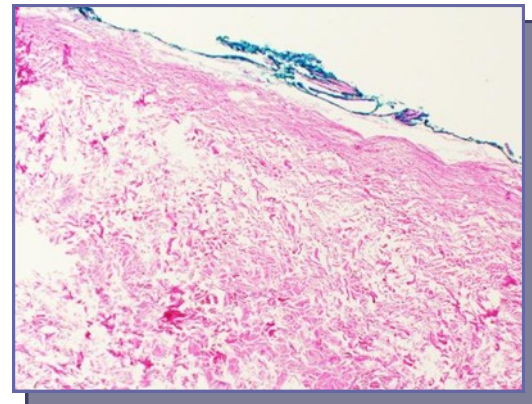
Other uses for tissue marking dye/paint:

- To ink a margin of particular concern
- Apply to special areas of interest other than margins
- Identify different specimens in a container

To find tissue marking dyes just do a web search for "tissue marking dyes".



A section of skin painted with different colors for the margins and entire deep margin.



Blue dye on a section of painted skin.

Brucella Testing Changes

As of May 1st, 2012 the State/Federal Laboratory in Topeka will not be testing samples for brucellosis.

This change is the result of Federal Budget reductions. All samples will need to be sent to an approved veterinary diagnostic laboratory such as the Kansas State Veterinary Diagnostic Laboratory in Manhattan, Kansas (www.ksvdl.org).

Submissions will still need to be accompanied by form VS 4-33. Any samples found positive at KSVDL will be forwarded to the National Veterinary Services Laboratory in Ames, IA for confirmation.

Blood tubes and shipping boxes will no longer be provided by the USDA Kansas-area laboratory. The VS forms, identification tags and test charts will still be supplied and may be requested by calling the USDA at: 785-270-1300.



Developing, Delivering Accurate, Innovative Diagnostic Services

The mission of the Kansas State Veterinary Diagnostic Laboratory (KSVDL) is to develop and deliver accurate, innovative, and timely diagnostic and consultative services to the veterinary and animal health community while providing support for teaching, training, and research programs.

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We're on the web!
www.ksvdl.org

Continuing Education

K-State Beef Conference, Aug 9, 2012

KVMA Fall Conference: November 10, 2012

Test Results & Schedules

Laboratory results may be accessed online 24 hours a day, 7 days a week!!

To set up an account go to:

www.ksvdl.org

KSVDL will be closed on the following days:

September 3, 2012



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