It is leptospirosis abortion season once again in Kentucky. The UKVDL has confirmed 11 leptospirosis abortions so far in the 2012-2013 reproductive season. Last year, we confirmed 24 for the entire season. Graph one below shows a delay in confirmation of our first case over last year. We still can expect abortions for about three more months. Graph two gives you a peek at the last five years of confirmed lepto abortion cases.

Daily plot of confirmed equine lepto abortions 2012 (blue) vs. 2013 (red)
Seasonal comparison of confirmed equine lepto abortions for last five seasons

**Overview:** Leptospirosis is a transmissible disease of animals and humans caused by infection with the spirochete *Leptospira*. All the pathogenic leptospires were formerly classified as members of the species *Leptospira interrogans*, however the genus has recently been reorganized and pathogenic leptospires are now identified in 17 named species and four genomospecies of *Leptospira*. There are more than 200 distinct leptospiral serovars recognized and these are arranged in 23 serogroups. Previous studies in Kentucky suggests that leptospirosis was the leading cause of abortion in domestic animals, mostly horses in 1989 and the third the most common bacterial cause of abortion diagnosed from 1986 through 1991.

Clinical leptospirosis in horses, cattle and companion animals is often associated with recent exposure, directly, or indirectly, to surface water contaminated by rat urine. Horses typically behave differently and live in a different environment which usually combines pasture and a stable that are also shared with a number of small mammals. In winter, most horses are fed roughage which is almost inevitably contaminated by mouse, raccoon and often rat urine. Cattle, dogs, as well as horses, are exposed to animals that can be reservoirs of leptospires.

Definitive diagnosis of leptospirosis is very difficult since culture of leptospira takes up to 13 weeks and often hampered by other bacterial contamination. The gold standard for diagnosis of leptospirosis is the MAT, in which patient sera are reacted with live antigen suspensions of major leptospiral serovars. However, MAT works only with serum, cannot be used with urine or fresh tissues and it is often difficult to differentiate an active infection from previous exposures. The other methods include serological
assays such as ELISA, Fluorescence Antibody (our method for confirmation on fetal tissues) and Immunohistochemistry.

WHAT THE UKVDL CAN DO FOR YOU--

Necropsy and histopathology— A veterinary pathologist does a complete gross and microscopic examination and harvest of fetal tissues (and placenta if submitted). Tissues are then submitted for culture, other confirmatory testing, $50 total.

MAT TITERS:
Specimen-- Serum from 7 ml red top tube without separator gel, 1.5 ml serum ideal.
Price-- $3 per serovar.
Value—
  • Learn if horse has been exposed or is possibly infected with Leptospires.
  • Learn what serovar a horse has been exposed to/infected with.
  • Paired samples with 4-fold rising titer can aid in making a diagnosis of leptospirosis.

FLUORESCENT ANTIBODY TESTING:
Specimen-- 20-40 ml urine. 10 - 25 g fresh tissue, placenta, kidney or liver.
Price-- $12
Value—Confirm the presence of leptospires in a specimen or in an aborted foal

REAL-TIME PCR:
Leptospiral DNA can now be detected by real-time PCR at the UK Veterinary Diagnostic Laboratory. Real-time PCR is extremely sensitive, specific and works with tissue samples regardless of being fresh or putrefied. In addition, urine samples in which often infected or carrier animals shed can be tested. This new test
now allows the practitioners to diagnose not only infected animals but also carrier animals that may be shedding into the environment.

**Specimen**-- Minimum 10 ml urine and/or 20 grams fresh kidney. Send your specimens in leak-proof containers with enough chill packs to keep the specimens cool.

**Price**-- $20/animal.

**Value**--

- Confirm that leptospirosis organisms are present in a specimen (e.g. aborted fetus)
- Selection of an appropriate treatment
- Detect animals shedding leptospires in the urine
- Shorten the time required to confirm a clinical diagnosis
- Early prevention of spread of leptospira organisms
- Minimize human exposure to leptospira organisms

Please submit all of your fetuses to our laboratory for a comprehensive exam, testing and an accurate diagnosis. Call Dr. Deb Williams, Diagnostic Services Coordinator with any questions you may have regarding sampling and submission.

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