

OADDLE-News

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Feline Infectious Peritonitis (FIP)



Photo by Clarissa Walton

Feline infectious peritonitis (FIP) is a viral disease of cats that is associated with high mortality. The causative agent of FIP is a virulent strain of coronavirus. FIP is most common in cats less than 2 years of age.

Most feline coronaviruses do not cause obvious symptoms in infect-

ed cats. A very small percentage of these cats will eventually develop FIP weeks or months after initial infection. Infection is characterized by virus deposition in blood vessels and subsequent pyogranulomatous vasculitis.

Two clinical forms of FIP are rec-
continued on page 2

2018 Rabies Submissions at OADDL

OADDL received 60 submissions for rabies testing in 2018. Four (4) of these submissions (3 skunks and 1 bovine) tested positive for the rabies virus by fluorescent antibody (FA) testing at the Oklahoma State Department of Health (OSDH) in Oklahoma City. One of the skunks was found recumbent in a parking lot during the day and the bovine was described as straining to defecate,

anorexic, bellowing, unable to swallow, and salivating. OSDH reported thirty (30) animals testing positive for rabies in 2018 (Fig. 1).

Of the 60 submissions to OADDL, testing on twenty-nine (29) was limited to rabies examination. Submissions occurred during all months with no apparent seasonality (Fig. 2). Wildlife
continued on page 4



Bermudagrass Staggers in Oklahoma Cattle

Over the past 2-3 months, several food animal veterinarians have reported neurologic signs in beef cattle on Oklahoma pastures.

The most commonly reported clinical symptoms include incoordination, ataxia, head bobbing/tremors, glaring eyes and photosensitivity. Recumbency was reported in two cases. In all cases, the cattle were grazing Bermudagrass. Clinical signs in affected cattle resolved within days of the animals being removed from the pastures.

Microscopic examination of Bermudagrass tassels on one case revealed fungus-infected seeds (Fig. 1).

The ingestion of tremorigenic mycotoxins is a well-recognized cause of “staggers” in grazing cattle. In the U.S., the most common grasses associated with mycotoxin-related staggers are perennial Ryegrass, Dallisgrass, Bahiagrass and Bermudagrass.

Bermudagrass staggers usually occur in cool, cloudy weather of late fall when the seed heads are heavily colonized by the fungus *Claviceps cynodontis*. The infected seeds become

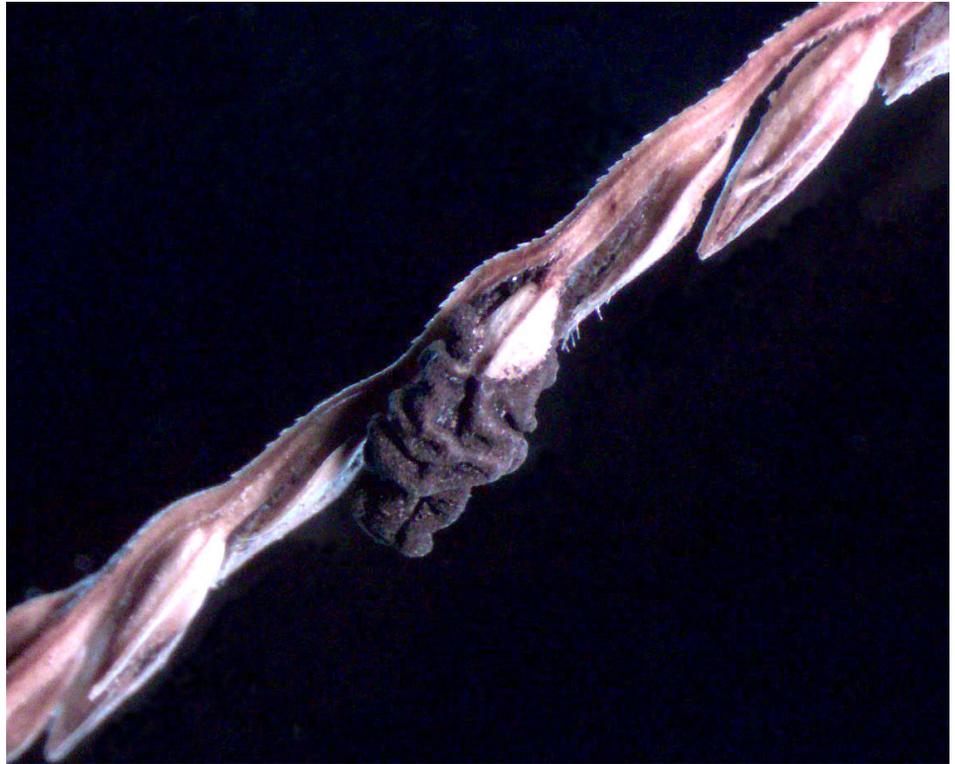


Figure 1. Fungus-infected Bermudagrass seed originating from a farm with recumbent cattle.

coated in dark gray-black fungal growth and are termed sclerotia.

Unfortunately, there is currently no specific diagnostic assay for the toxin(s)

associated with Bermudagrass staggers. Removing cattle from infected pastures is the recommended treatment.

– Dr. K. Bailey

Feline Infectious Peritonitis (FIP) *continued from page 1*

ognized: the so-called “wet” (effusive) form and the “dry” (non-effusive) form. In the wet form, affected cats develop discrete pyogranulomas and protein-rich fluid accumulations in body cavities (Fig. 1) which contribute to the clinical signs.

Cats exhibiting the dry form of FIP often have lesions in major organs such as the eye and brain; however, these cats do not develop the fluid accumulations observed with the wet form. Central nervous system (CNS) signs are a common presenting complaint (*see related article in this issue for presenting complaints that may mimic rabies virus infection*).

– Dr. K. Bailey

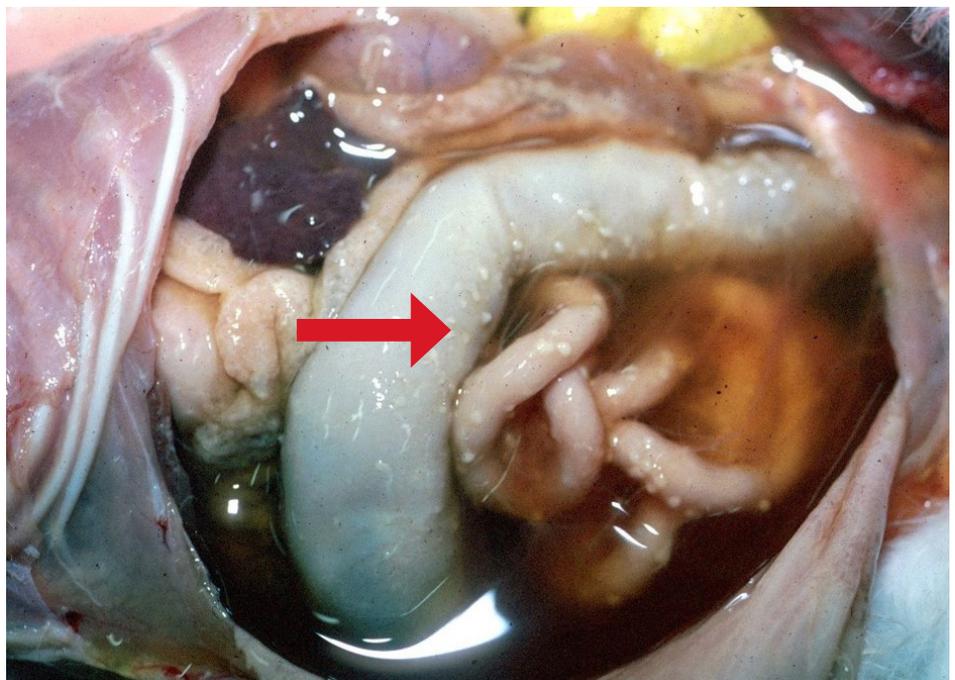


Figure 1. Prominent serosal pyogranulomas (arrow) and accompanying protein-rich effusion (modified transudate) in the abdominal cavity of a young cat with FIP.

The Hidden Cost of Gastrointestinal Parasitism in Cattle

It is estimated that production losses attributed to subclinical gastrointestinal parasitism in U.S. cattle exceed \$2 billion annually ([Stromberg 2006](#)).

Subclinical disease in cattle is increasingly more common due to anthelmintic resistance ([McArthur 2014](#)).

Although clinical diseases caused by resistant nematodes have been reported in some cattle herds under concentrated management conditions, a typical resistance scenario involves stocker cattle that appear healthy, yet achieve minimal weight gains while grazing good quality pastures for several months.

Diagnostic testing of feces is recommended to determine the parasitic burden in a herd, and can assist producers in implementing effective strategies based on the test results.

– *Dr. Y. Nagamori*

Figure 1. *Haemonchus placei* adults recovered from the abomasum of a 6-month-old Angus bull calf with a history of weight loss over a period of 6 weeks.



Stop by our booth at the

O K L A H O M A
V E T E R I N A R Y
C O N F E R E N C E

NORMAN, OK



JANUARY, 24-26

Visiting the 2019 Oklahoma Veterinary Conference? Make sure you stop by the OADDL booth. The OKVC offers premium CE with the latest insights and advances in the profession. Centrally located in Norman, 16 hours of CE, and an opportunity to connect with your colleagues and classmates.

2018 Rabies Submissions at OADDL *continued from page 1*

accounted for 30% of the submissions (Fig. 3), with skunk the most common species. Dogs accounted for 22% of the submissions and cats accounted for 18% of all submissions to OADDL for rabies testing (Fig. 4).

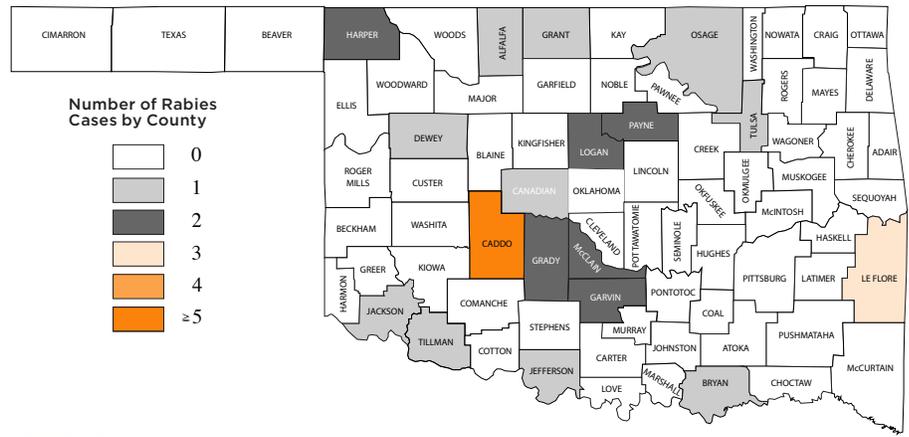
Additional laboratory testing was performed on thirty-one (31) of the 60 cases and revealed meningoencephalitis [herpesviral (n=1), granulomatous (n=1), migrating nematode (n=2), West Nile virus (n=1), undetermined cause based on limited testing allowed (n=4)], cytauxzoonosis (n=3), feline infectious peritonitis, FIP (n=2), and pneumonia (n=2).

Currently, the Public Health Laboratory (PHL) of the OSDH is the only approved rabies testing laboratory in Oklahoma. Brain specimens collected at OADDL are picked up by a courier at approximately 11:00 AM, Monday through Friday (excluding holidays) and transported to the PHL for testing.

Depending on your physical location, situation and timing of submission, testing may be expedited by direct submission to the PHL. See their [website](#) for details and specimen size limitations.

– E. Cooper

County Location of Animal Rabies in Oklahoma January 1 through December 31, 2018 (n=30)



Acute Disease Service
Oklahoma State Department of Health

For further information call or visit us on the World Wide Web
Acute Disease Service
Oklahoma State Department of Health
Phone (405) 271-4060
<http://ads.health.ok.gov>

Figure 2. Monthly Distribution of Rabies Submissions to OADDL in 2018 (n=60)

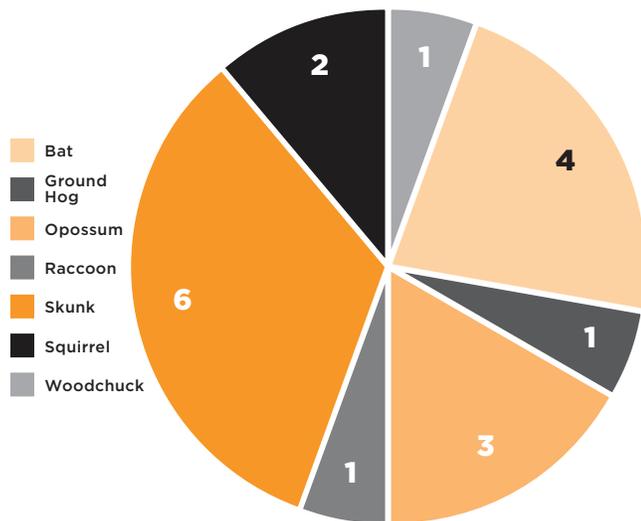
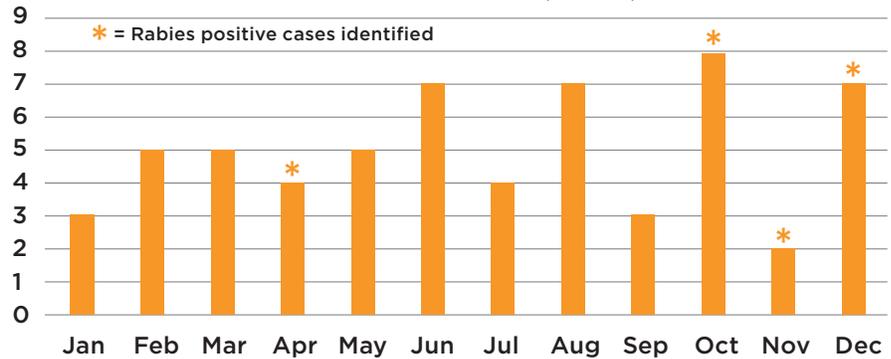


Figure 3. Wildlife Species Submitted to OADDL for Rabies Testing in 2018 (n=18)

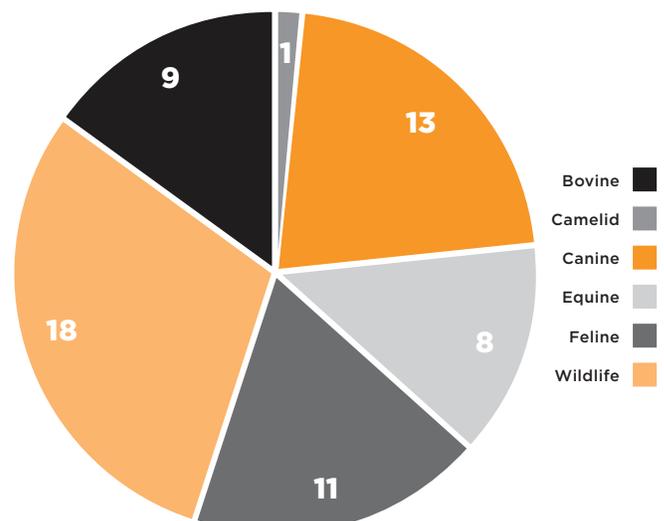


Figure 4. Animal Species Submitted to OADDL for Rabies Testing in 2018 (n=60)

Letter from the Director

How do you measure the total value of a Veterinary Diagnostic Laboratory (VDL)?

What is the value of a VDL to a veterinarian seeking assistance with a difficult case, the owner of animals that are dying, or a livestock producer trying to establish disease-free status for the safe movement of animals or animal products?

An article was published in 2018 with the objective of measuring the economic impact of university VDLs ([Schulz 2018](#)). This study was based on the analysis and modeling of data at the Iowa State University (ISU) VDL.

The ISU VDL study showed that state funding to the VDL resulted in an approximately 8-fold return on investment during normal years, and an approximately 31-fold return on investment during years with an animal health emergency.

At OADDL, we work every day of the year to provide clients with timely and accurate test results. In 2018, we received cases from 75 Oklahoma counties and sent 5,384 diagnostic test reports to clients outside routine business hours.

Of our successes, we are particularly proud of validating and rolling-out

an affordable alternative transport medium for trichomoniasis testing of bulls.

We also had the great pleasure of interacting directly with clients during the OVMA meeting, CVHS Fall Conference, and several other outreach opportunities including this e-Newsletter. For those attending the OVMA Annual Meeting next week, please stop by our vendor booth and let us know how we can better serve you.

On behalf of the lab, we wish everyone a healthy, happy and prosperous 2019!

– Dr. K. Bailey

Getting to Know Us

Jennifer Jackson joined the Molecular Diagnostics and Serology Labs in July as a Senior Lab Technologist. She received her B.S. in Zoology at OSU in 2006. During college she did an internship with the Tulsa Zoo in the Large Mammal department and is obsessed with elephants!

Jennifer has two children, Annalee and Levi. They have two dogs, two leopard geckos and one hamster. She helps coach her kids' soccer teams and in her spare time, she enjoys fishing, reading, gardening and spending time outdoors with her family.

Noah Allen is originally from Enid, OK and moved to Stillwater in 2011. He attended OSU, graduating in 2015, where he worked as a biology and physics tutor and earned a BS in Physiology. Noah has been working at OADDL since January, 2018 and in his free time he enjoys cooking, video games, and playing with his dog, Annie, a Great Pyrenees/Anatolian-Shepherd mix.



Ideas/Suggestions for Future Content

We want to hear from you. Send us your ideas and suggestions to oaddl@okstate.edu.

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