

New test may help address costly parasite in sheep and camelid industry

Writer: David Stauth, 541/737-0787, david.stauth@oregonstate.edu

Contacts: Michael Kent, 541/737-8652, Michael.kent@oregonstate.edu; Bob Storey, 706/542-0195, bstorey@uga.edu

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Researchers at Oregon State University and the University of Georgia have developed an improved, more efficient method to test for the most serious of the parasitic worms in sheep, a problem that causes hundreds of millions of dollars in losses every year to the global sheep and wool industry.

This technology is now available, and will allow a faster, easier and less expensive way to test for the presence and quantity of *Haemonchus contortus*, or "barber pole" worms, a species that is very pathogenic to sheep, goats, alpacas and llamas. This will help sheep ranchers deal with this problem more quickly and effectively, optimize their management practices, and sometimes avoid costly therapies.

Findings about the new test were just published in *Veterinary Parasitology*, a professional journal.

"This particular parasite is much more pathogenic in sheep than other worms, and previous methods to detect it were very labor intensive and often not commercially practical," said Michael Kent, an OSU professor of microbiology. "Now ranchers and veterinarians can test for this problem and target their management or treatment strategies much more effectively."

This parasite causes significant production losses, and in some cases it's the limiting factor to sheep production on pasture lands. The nematodes can cause internal bleeding, which in turn can lead to anemia, poor food conversion and growth, low protein levels, reduced lamb production and wool yield, and in some cases death.

Known as the barber pole or wire worm, *Haemonchus contortus* is a blood-sucking parasite that pierces the lining of the sheep's stomach. It's a prolific egg producer, releasing up to 10,000 eggs per day, and often causes problems in warmer climates or during the summer. Once an infection is demonstrated, expensive treatments or complex management strategies are often needed to address it.

The new lectin staining test is based on a peanut agglutinin that binds to eggs of the parasite and can be easily visualized with a microscope using ultraviolet light. It's an improved version of previous technology developed by scientists in Australia that was slower, less effective, more expensive and required more advanced training to perform, researchers say.

The relatively inexpensive test was developed by microbiologists and veterinary doctors at OSU and UGA, and is now available through those institutions. Its use should continue to expand and become more readily available around the world, Kent said.

The test may also be of special value to ranchers interested in organic production of sheep, goats, alpacas and llamas, who try to avoid use of chemical treatments in maintaining the health of their animals.

"One of the current testing tools commonly used by sheep and goat farmers in dealing with *H. contortus* is the FAMACHA method, in which the farmer compares the animal's lower eyelid color to swatches on a card to determine the animal's anemia status," said Bob Storey, a UGA researcher who co-developed the lectin staining test. "This method only works in situations where *H. contortus* is the primary parasite in a given herd's worm population. The new lectin staining test allows for a faster and less expensive method of determining the predominance of *H. contortus* in a herd worm population, thereby making it easier for producers to determine if FAMACHA can be a useful tool for them. Additionally, for the veterinarian dealing with an anemic animal and a heavy

parasite burden, the lectin staining test provides quick feedback as to whether the anemia is parasite-based or may be due to another cause."

The test requires only a small amount of feces, and results are available in as little as two days. Anyone interested in obtaining the test can get information on sampling, test results and fees from the Veterinary Diagnostic Laboratory at OSU* (<http://oregonstate.edu/vetmed/diagnostic> or 541/752-5501), or Bob Storey (Dept. of Infectious Diseases, College of Veterinary Medicine, University of Georgia, Athens, Ga., 30602 or 706/542-0195). FAMACHA information can be obtained through Bob Storey or by sending an email to famacha@uga.edu.

As with any animal health concerns, results should be reviewed with a veterinarian so that proper treatment programs can be put in place, researchers said.

About Oregon State University: OSU is one of only two U.S. universities designated a land-, sea-, space- and sun-grant institution. OSU is also Oregon's only university designated in the Carnegie Foundation's top tier for research institutions, garnering more than 60 percent of the total federal and private research funding in the Oregon University System. Its more than 20,300 students come from all 50 states and more than 80 countries. OSU programs touch every county within Oregon, and its faculty teach and conduct research on issues of national and global importance.

About the UGA College of Veterinary Medicine: The University of Georgia College of Veterinary Medicine, founded in 1946, is dedicated to training future veterinarians, to conducting research related to animal diseases, and to providing veterinary services for animals and their owners. Research efforts are aimed at enhancing the quality of life for animals and people, improving the productivity of poultry and livestock, and preserving a healthy interface between wildlife and people in the environment they share. The current Teaching Hospital, built in 1979, serves more than 18,000 patients per year in one of the smallest teaching hospitals in the United States. The college is currently working to raise \$15 million toward building a new Veterinary Medical Learning Center, which will include a new teaching hospital as well as classrooms and laboratories that will allow for the education of more veterinarians. More veterinarians are needed to promote food safety and protect public health and to provide veterinary services for farm and companion animals owned by a rapidly growing regional population. The college enrolls 102 students each fall out of more than 550 who apply. The goal is to increase enrollment to 150 when the Veterinary Medical Learning Center is built. For more information, see <http://www.vet.uga.edu/>.

*From the Oregon State University Diagnostic Laboratory web site (January 2010):

Haemonchus contortus Identification

Test Name: Haemonchus contortus ID Diagnostic Section: Bacteriology Fee: \$10.00*

Species: Camelid, Caprine, Ovine Set up days: M, Tu, W, Th, F Turn Around Time: 2 days

Specimen Requirements:

Fresh feces - 5 grams, samples older than 5 days should be rejected as embryonation and loss of ova may have occurred.

Collection Protocol:

Fresh feces, collected directly from the animal's rectum or from very fresh droppings to eliminate extraneous soil organisms. *Concurrent sugar centrifugation required, additional charge applies.

Shipping Requirements:

Refrigerated, leak proof container. Do not submit in latex gloves or OB sleeves. Overnight or 2-day shipping is recommended.

Additional Information:

This technique is used primarily for camelid, caprine and ovine species but can be used for other species as well.

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Note to editors: For a downloadable image of the parasite, see

<http://www.vet.uga.edu/PR/photos.php>

Cutline for photo: "This parasitic worm that infects sheep and camelids, *Haemonchus contortus*, is seen along with its eggs, made easily visible with a new test developed by researchers at Oregon State University and the University of Georgia." Please give photo credit to University of Georgia College of Veterinary Medicine.

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