

USDA Approves Purified Anaplasmosis Vaccine

Clinical studies prove vaccine protects 90% of herds; approved for pregnant cattle.

The U.S. Department of Agriculture recently approved Plazvax™ Vaccine, an oil-adjuvanted, killed vaccine, which is produced and marketed by Mallinckrodt Veterinary Inc. Clinical studies demonstrated that at least 90 percent of the cattle tested were protected when challenged with *Anaplasma marginale* isolates from four different geographic regions throughout the United States.

Additionally, the vaccine has been demonstrated to be safe for use in cattle of all ages and in pregnant cattle.

Anaplasmosis Proves Costly

Anaplasmosis costs an estimated \$300 million annually in losses to the cattle industry, and can result in veterinary and management costs totaling \$94 per head. The disease is caused by a microorganism called *Anaplasma marginale* that invades animal's red blood cells. It's spread by transfer of blood from infected animals to non-infected animals via arthropod vectors, such as ticks, biting flies and mosquitoes.

Transmission can also occur via mechanical vectors while performing various husbandry practices such as vaccinating, ear tagging, castrating and branding.

The regional tendencies that anaplasmosis has exhibited make the disease even more difficult to control. Anaplasmosis is prevalent in the southern Atlantic, Gulf Coast and many Midwestern and Western states. Likewise, different vectors in different states spread the disease.

Plazvax vaccine overcomes problems associated with former vaccines, providing protection against all clinical signs of *A. marginale* infection without certain limitations or safety issues of the past.

Clinical Trials Demonstrate Safety

In one efficacy study, vaccinates were challenged by intravenous needle inoculation with the Florida and Mississippi isolates of *A. marginale*. In the vaccinated group, 90 percent of the animals were protected, while 80-90 percent of the animals in the unvaccinated control groups were unprotected.

In a second efficacy study, the vaccine was also tested against an Oklahoma isolate and a Virginia isolate of *A. marginale*. The Oklahoma isolate was administered via a syringe and needle and the

Virginia isolate via infected ticks. In the vaccinated groups, none of the challenged animals developed acute clinical anaplasmosis. In the unvaccinated groups, all needle challenged animals (Oklahoma isolate) developed clinical signs of anaplasmosis and four of seven animals infected with the Virginia isolate via infected ticks developed anaplasmosis.

Mallinckrodt Veterinary Inc. performed a field safety trial on more than 1,000 cattle in nine herds located in four geographic locations to evaluate local and systemic post-vaccinal reactions following administration of Plazvax vaccine. Vaccination of pregnant cattle showed that the product is safe for use in yearling and adult cattle during all stages of pregnancy.

"The product did not cause abortion, interfere with breeding or cause neonatal isoerythrolysis in calves," said Dr. Katherine Kocan of Oklahoma State University. "Likewise, subcutaneous administration did not cause injection site abscessation or excessive residual fibroma/induration."

Vaccination Controls Cost

"Quite often, cattle can be in the advanced stages of anaplasmosis before the cattle producer even notices signs," said Dr. William Todd, Louisiana State University. "Vaccination is key in controlling

the economic losses associated with this devastating disease. It's often too late to save the cow when the signs are exhibited."

Clinical signs also vary depending upon the age of affected cattle. Calves less than six months of age have a milder form of the disease and usually survive. However, they may remain persistent carriers of the disease. Cattle ages 1-3 years usually acquire the severe form of anaplasmosis, but most can recover. Anaplasmosis in cattle more than 3 years of age can be quite severe, with marked anemia and up to a 50 percent mortality rate.

Treatment of anaplasmosis typically involves regimens such as limiting stress, isolating infected animals and administering blood transfusions and antibiotics for the entire herd. With these treatments costing \$12 to \$35 per animal, vaccination usually proves to be a more cost-effective alternative. Most veterinarians, however, recommend implementing a combination of several techniques to control spread of the disease.

Editor's note: Beef producers may call 1-800-525-9480 to receive a free brochure about anaplasmosis.



New Cancer Drug Proves Effective At Colorado State Vet Hospital

A newly developed version of the cancer drug paclitaxel (commonly known as taxol in scientific literature) has proven extremely effective in battling cancer in pets at Colorado State University's Veterinary Teaching Hospital.

Based in part on the preclinical studies on both rats and dogs at Colorado State, paclitaxel also has been used in human clinical trials in Australia, where it is awaiting approval for commercial use. The drug also is currently being used in human clinical trials in the United States.

Dr. Greg Ogilvie is head of medical/oncology at the Comparative Oncology Unit at Colorado State Veterinary Teaching Hospital. He said in two years of clinical testing at the veterinary hospital, the drug has been effective in the treatment of thyroid and ovarian cancer as well as mammary cancer in dogs, which is comparable to breast cancer in humans.

Ogilvie said dogs treated in the Colorado State study previously had been treated unsuccessfully with other methods, but when treated with paclitaxel showed positive results. Once other treatments failed, hospital officials asked owners if they would like to try paclitaxel for treatment of their pets, he explained.

Ogilvie said the university will continue to test the drug with an emphasis on improving the quality of life for veterinary patients while they receive treatment.

"We're excited about the use of this newly developed drug and its future role in the fight against cancer," Ogilvie said, "We're hopeful use of this drug will lead to success in saving lives, both animal and human."