

Bovine TB Updates

Extension Programming

In 2005 Minnesota discovered its first beef cattle herd testing positive for bovine TB in northwest Minnesota. Since then education and communication have been critical to the understanding, managing, and compliance of rules and regulations required for eradicating this disease. Since 2005, University of Minnesota Extension has assisted in or conducted over 40 informational meetings and training clinics across the state. Education for Minnesota livestock producers dealing with bovine TB has been and continues to be a priority of the University of Minnesota's extension and outreach efforts. In addition, the University continues to search for management practices that address some of the concerns with the spread of this disease within and across species (cattle and deer), and the validity of current diagnostic testing strategies.

Seven research and education projects were awarded by the Minnesota Rapid Agriculture Response Fund that focus on filling knowledge gaps in the state's fight

against bovine TB. The University of Minnesota Extension Beef Team will coordinate grants awarded for two studies under Bovine TB Management and one grant award for outreach education for producers dealing with bovine TB. Collaborators on this work are the Minnesota Bovine TB Task Force, which includes the Board of Animal Health communications team, University Extension, and the Center for Animal Health and Food Safety (CAHFS). The work will include: 1) annual meetings with Minnesota stakeholders; 2) participation in State-Federal work conferences; 3) presentations to veterinarians and cattle producers including regular town meetings in the affected regions of northern Minnesota; 4) delivery of information from research projects via CAHFS web page; and 5) participation in a bovine TB policy summit with Michigan.

Dr. Ryon Walker, University of Minnesota Extension Beef Team

Update from MN Department of Agriculture

Minnesota achieved split state status on October 10, 2008. Since the summer of '08, Minnesota has completed the buyout of 46 herds (6,200 head), put up 71,000 ft of 10' high fence (approximately 11 miles) to protect feeds and feeding areas, and tested 4,164 deer in Northwest Minnesota since 2005. The state legislature approved a temporary \$1/head assessment on all Minnesota-raised cattle sales in the state between January 1, 2009 and December 31, 2009, with the exception of the modified accredited (MA) zone producers being exempt. These funds will be used for continued bovine TB eradication activities. The state will continue with statewide cattle herd surveillance, enforcement of MA zone cattle movements, continue wild deer surveillance

and reduction efforts, and continue to work with USDA to upgrade the TB status in Minnesota.

The University of Minnesota has been an integral partner in the state's response to bovine TB. Their ongoing research, education and outreach efforts has been vital in assisting producers, veterinarians, and the state to better understand and manage TB and limit the economic impact of this disease. The more we understand how to manage and eradicate the disease, the more likely Minnesota's cattle industry will adapt and prosper.

Joe Martin, Minnesota Bovine TB Coordinator, MN Department of Agriculture

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UNIVERSITY OF MINNESOTA

EXTENSION

Risk Assessment of Cattle – Deer Interactions on Cattle Farms in Northwest Minnesota

Investigators from the College of Veterinary Medicine (B. Knust) and USDA-APHIS-Wildlife Services (P. Wolf) completed risk assessments of cattle-deer interactions on 53 farms in northern Minnesota outside of the regulated core zone in the winter of 2008. Preliminary results indicate that many cattle herds have feeds that are stored and fed in the open for deer to access, which can be a risk factor for bovine TB transmission between cattle and deer. Deer are especially attracted to beet pulp, grains, silage, and second or third cutting alfalfa hay. From other research, bovine TB-infected animals are able to contaminate these feed items with the infectious bacteria which can survive for days to weeks in cold winter conditions, thereby creating the potential for transmission between

deer and cattle or other livestock species. Results from this study will provide information to better understand management factors on farms that reduce the probability of deer contact with cattle or cattle feeds.

This project was completed through collaboration among the Center for Animal Health and Food Safety (CAHFS), the University of Minnesota Beef Team, USDA-APHIS-Wildlife Services, the Minnesota Board of Animal Health, the Minnesota Department of Natural Resources, and USDA-APHIS-Veterinary Services.

Scott Wells (DVM), and **Barb Knust** (DVM), Center for Animal Health & Food Safety

Qualitative risk assessment of Bovine TB in northern Minnesota

Bovine TB is a complex disease with numerous routes of infection. A qualitative risk assessment is being developed to look at the risk of transmission of Bovine TB in the Minnesota cattle population. This risk assessment will evaluate all the different sources of infection of Bovine TB to cattle, and identify the most important means of transmission. This project will use information from a recent study of management practices by Minnesota producers that participated in an on farm risk assessment questionnaire, along with research that has been done

around the world. The goal is to identify practices that are critical to disease transmission and prevention, and to identify the areas where future work is needed. This information will be used to help prevent the spread of Bovine TB and improve our understanding of this disease.

Scott Wells (DVM) and **Tim Goldsmith** (DVM), Center for Animal Health & Food Safety

Assessment of Bovine TB Diagnostic Testing Strategies

Testing strategies for bovine tuberculosis are confusing for producers, veterinarians, regulators and scientists alike. An evaluation of the sensitivity and specificity of the current Bovine TB testing strategies is underway. The current U.S. strategies utilize the caudal fold skin test (tail injection) with a follow-up comparative skin or blood test for animals that respond to the initial test. Under current USDA rules this strategy is the only accepted system for both whole-herd and individual (sale) animal testing. A summary of available information from published literature as well as from USDA, Michigan, and Minnesota data is being compiled. A side-by-side comparison of current testing strategies to alternate testing strategies, evaluation of sensitivity and specificity as well as a cost benefits for the different strategies will be included. The

results will include comparisons of whole-herd testing, individual animal testing, active and passive surveillance, down-the-road testing for disease control and different strategies utilized for an eradication program. The long-range goal is a transparent, uncomplicated, risk-based eradication program, based on sound science, which provides an efficient use of resources and can be implemented across a wide range of environments and disease prevalence scenarios. The aim of this current work is to guide future testing strategies and help provide the most effective allocation of resources for disease eradication and control.

Tim Goldsmith (DVM) and **Mac Farnham** (DVM, MS), Center for Animal Health & Food Safety

Managing Feed Intake in Beef Cattle Herds to Reduce TB Transmission Risk

Cow feed left over in bunks or on the ground may serve as a mechanism to transmit bovine TB and other diseases. This is particularly true if wet or fermented feeds are components of the cow's diet. Therefore, a study, funded by the Rapid Ag Response program of the University of Minnesota College of Food, Agricultural, and Natural Resource Sciences is being undertaken at the University's North Central Research and Outreach Center in Grand Rapids. The hypothesis is that transmission of TB and other diseases between cattle and wildlife is reduced by proper feed allocation to cattle. Thus, three studies will be conducted that address: 1) dry matter potential of beef cows fed diets comprised of wet and dry feeds, 2) consumption and feed left over (waste) of supplements to hay-based diets dispensed under various feeding methods. An individual Calan-door feeding facility is being built to accommodate the first study. In this study, cows will be

offered the same caloric supply to at least 3% greater than recommended intake levels based on diets that combine hay, corn silage, haylage, and wet and dry supplements such as beet pulp and wheat midds. Cows will be monitored for at least 28 days to observe the effect of weather on intake patterns. The second study will be conducted using common hay delivery systems (bunks, rolled on the ground, ground and windrowed or in a hay ring) to determine the extent of intake and waste in each system. Lastly, the third study will be conducted using several wet and dry commodity feeds to achieve similar energy supplementation levels (corn silage, beet pulp, corn, and wheat midds).

Dr. Alfredo DiCostanzo and Jeff Jaderborg, University of Minnesota Extension Beef Team

Assessment of the Value of Spayed Heifers for Marketing

Spaying of heifers is a practice that has been available for many years, but is very rarely used in Minnesota beef operations. Traditionally, heifers in feedlots are fed separately from steers, requiring special rations and care that may result in added labor for the feedlot staff. Through spaying, heifers should be able to be fed together with steers while avoiding negative effects on heifer performance. In addition, spaying of heifers with a modified accredited (MA) TB status allows more freedom of movement than intact heifers. Spayed heifers are allowed to move across state lines from within an MA zone with only a negative individual TB test within 60 days prior to movement, while intact heifers require not only the 60-day test, but also must be part of a whole-herd negative TB test within 12 months of movement.

Research investigating the effect of spaying on feedlot heifer performance is limited. Therefore, the University of Minnesota Extension Beef Team, through the use of Rapid Agricultural Response Funding, will be investigating the effects of spaying on feedlot performance, carcass characteristics, and overall value of heifers. This experiment will take place at the University's Northwest Research and Outreach Center (NWROC) in Crookston, and will progress in conjunction with the University of Minnesota Carcass Merit Program.

On November 3rd and 4th, approximately 140 intact heifers were delivered to the NWROC from 11 producers in

northwestern Minnesota. In early December, half of these heifers were spayed and half remained intact to test the effect of spaying on feedlot performance. Within these two groups, two different anabolic implant strategies will be used to further determine the impact of moderate and aggressive implant strategies and their interaction with spayed and intact heifers. Heifers will be fed a typical high-energy feedlot diet to market weight (approximately 1,250-1,300 pounds), at which point the heifers will be marketed to a commercial packing facility where carcass data will be collected. Throughout the experiment performance measurements such as feed intake, weight gain, and health will be recorded.

Dr. Grant Crawford and Jolene Kelzer, University of Minnesota Extension Beef Team

