For more information contact

Sarah Johnston, *Communications Assistant*
sarah.johnston@mycentralstar.com
800.631.3510

Researchers Develop Improved Diagnostic Test and Strategy for Control of Bovine Leukemia Virus

Lansing, Mich., June 15, 2020 – CentralStar researchers recently developed a new test to identify cows with the highest probability of transmitting Bovine Leukemia Virus (BLV), a virus that causes bovine leukosis and negatively impacts profitability in 89 percent of U.S. dairy herds.

The BLV Super-Shedders (SS1) polymerase chain reaction (PCR) assay determines the concentration of the proviral DNA of BLV in a cow's blood, identifying the most infectious cows (super-shedders) in a herd. In collaboration with Michigan State University (MSU) and funded by grants through the United States Department of Agriculture (USDA) and the Michigan Alliance for Animal Agriculture (MAAA), CentralStar research demonstrates that identifying and prioritizing management of super-shedders is an effective strategy in a BLV control program.

The BLV SS1 PCR measures proviral load (PVL), an indicator of how many viruses a cow is shedding. Test results rank cows in order from highly infectious, with advanced disease, to non-infectious herdmates. Animals with a BLV DNA:cow DNA ratio >1.0 are considered super-shedders with advanced disease and are most likely to transmit the virus to herdmates.

BLV influences herd profitability by reducing milk yield, altering cow immunity, and shortening productive lifespan. BLV hijacks a cow's white blood cells, mainly B-lymphocytes, and incorporates its own DNA into the bovine DNA, therefore allowing detection in the animal's blood. According to the USDA, BLV in the U.S. has an average herd prevalence of 45 percent.

"The 'test and cull' method previously used for BLV eradication in other countries is not feasible in the U.S., given that almost half of U.S. dairy cows are infected," said Dr. Kelly Sporer, Research Scientist and Diagnostic Technical Specialist, CentralStar Cooperative. "Using results from the BLV SS1 PCR test, we have been able to work hand in hand with producers to implement effective management decisions and practices to significantly lower the risks of transmission within their herd."

Data collected through a seven herd, 3,000-cow, field trial were used to identify super-shedders using the BLV SS1 PCR assay. Test results used in combination with prioritizing segregation or removal of the most infectious animals, resulted in several study herds decreasing prevalence to levels at which "test and cull" strategies can be implemented toward full eradication. With over 10,000 tests in validation studies, the BLV SS1 PCR assay has shown to be an effective tool to detect advanced disease in BLV antibody-positive cows, allowing rapid implementation of management decisions for the control of BLV.

CentralStar Cooperative Inc was established May 1, 2019 as a result of the merger between NorthStar Cooperative Inc. and East Central/Select Sires. The cooperative's goal of enhancing producer profitability through integrated services is fulfilled by incorporating an array of products and services critical to dairy and beef farm prosperity. CentralStar's product and service offerings include Accelerated Genetics, GenerVations and Select Sires genetics; extensive artificial-insemination (A.I.) service; genetic, reproduction, and dairy records consultation; DHI services; diagnostic testing; herd-management products; research and development; and more. CentralStar's administration and warehouse facilities are located in Lansing, Mich., and Waupun, Wis., with laboratories in Grand Ledge, Mich., and Kaukauna, Wis. For more information, visit CentralStar Cooperative Inc. at www.mycentralstar.com.

###

Photo attached:

Change in prevalence of BLV positive cows in study herds using the BLV SS1 PCR assay to stratify and manage the most infections cows.

Whole Herd BLV Prevalence Over Time