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## **What Are the Economic Consequences of Disease Mismanagement?**

**A new invited review in *Applied Animal Science* examines the economics of eradication of bovine viral diarrhea virus by using herd health management decisions.**

Philadelphia, PA, December 9, 2019—Bovine viral diarrhea virus (BVDv) is present in 4% of US cattle herds. Some studies have reported a total cost to the US beef industry of \$1.5 to 2.5 billion per year. However, BVDv eradication strategies have not been widely reported or implemented. Scientists from Oklahoma State University analyzed the literature and USDA reports to quantify the costs and benefits of eliminating BVDv. “The outcomes from this analysis are useful for industry participants and policy makers as baseline incentive levels for cow-calf producers to adopt protocols to eliminate BVDv,” said lead author Dr. John M. Riley.

Persistent infection develops after in-utero exposure to BVDv that results in immunotolerance. Cows persistently infected (PI) with BVDv always give birth to PI calves and they are much more likely to infect other cows. Persistently infected calves that survive to weaning are a constant source of the virus to the rest of the herd. Exposure of cows to PI cows or calves could result in additional PI calves born in the following year without proper intervention. Current industry methods of marketing, assembling, and commingling cattle allow PI cattle to enter stocker and feedlot operations and expose many additional cattle to BVDv.

The effects on reproduction and performance are likely more meaningful for infected cow-calf herds because exposure could reach 100% of animals within the operation. Thus, the cost of BVDv eradication would fall mainly on cow-calf operations, while the other beef sectors would derive significant benefits. Therefore, a market failure issue is present in the cattle industry given that the full costs of BVDv are not fully reflected in market outcomes.

“This study provides an estimate of necessary market reaction to overcome BVDv market failure at the beef cow-calf sector. One possible path is to address the issue internally whereby operators further down the supply chain incentivize input suppliers to eradicate BVDv,” Riley said. “Assuming premiums present for preconditioned cattle are representative, this outcome could be underway. However, buyers would be wise to implement more strict requirements related to BVDv-PI-free status at these premiums.”

*Applied Animal Science* Editor-in-Chief David K. Beede said this review “uses the example of herd health management decision options to eradicate BVDv to quantify potential economic losses in infected and uninfected beef cow herds over a 10-yr period.” He added, “This approach is useful to the beef cattle industry and to policy makers when deciding whether to institute management protocols to eradicate BVDv.”

Market forces alone do not currently provide industry-wide incentives to eliminate BVDv. Industry or government intervention may be required. A parallel from crop production is cotton’s boll weevil–eradication program. In that case, the entire industry coordinated efforts, along with government-supported research and education.

The article appears in the December issue of *Applied Animal Science*.

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#### **NOTES FOR EDITORS**

“Invited Review: Economic consequences of beef cow-calf disease mismanagement: Bovine viral diarrhea virus,” by John M. Riley, Derrell S. Peel, Kellie C. Raper, and Courtney Hurt (DOI: <https://doi.org/10.15232/aas.2019-01861>), *Applied Animal Science*, Volume 35, Issue 6 (December 2019), published by FASS Inc. and Elsevier Inc.

Full text of the article is available to credentialed journalists upon request; contact Brittany Morstatter at +1-217-356-3182 ext. 143 or [arpas@assoqhq.org](mailto:arpas@assoqhq.org) to obtain copies. To schedule an interview with the authors, please contact Dr. John M. Riley at 405-744-6163 or [john.m.riley@okstate.edu](mailto:john.m.riley@okstate.edu).

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