



ELSEVIER



## NEWS RELEASE FOR IMMEDIATE RELEASE

### Media contact:

Brittany Morstatter

+1-217-356-3182 ext. 143

[ARPAS@assochq.org](mailto:ARPAS@assochq.org)

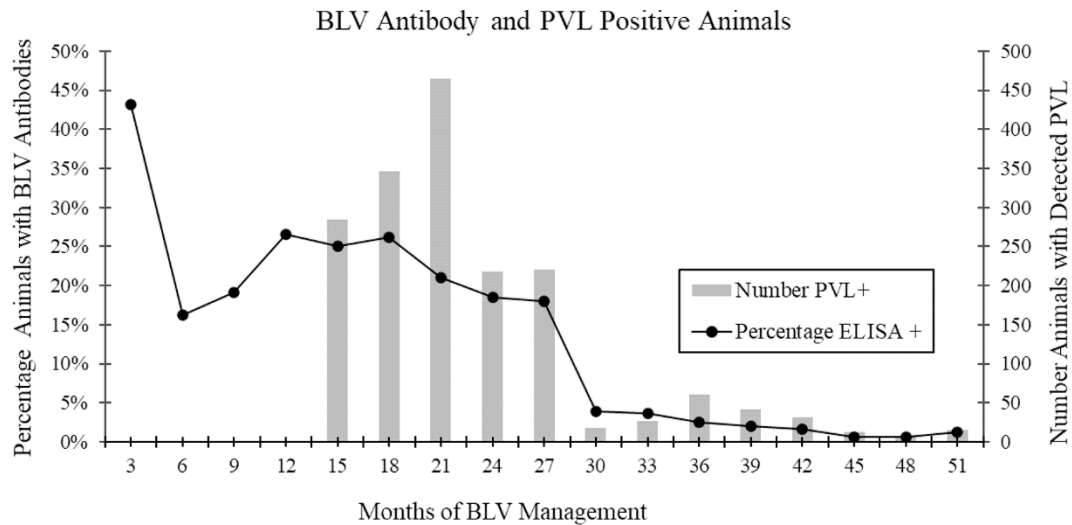
### Using diagnostic testing to control bovine leukemia virus in a dairy herd

*Elimination of bovine leukemia virus infections through selective culling using three tests is described in a recent article in Applied Animal Science*

**Champaign, IL, April 3, 2023**—Bovine leukemia virus (BLV) infects many dairy cattle in the United States and other countries. Beef cattle are also affected but at a lower rate. The economic impacts on the industry are just starting to be recognized. “Research over the past 15 years has demonstrated that BLV reduces milk production, shortens cow lifespan, and predisposes animals to diseases such as lymphoma and mastitis,” said David K. Beede, PhD, Editor in Chief of *Applied Animal Science*. Traditionally, control of the disease required the culling of all antibody-positive cattle, which is economically difficult. However, a new approach to BLV control is described in a recent [article](#) in [Applied Animal Science](#).

Scientists from Wisconsin and Michigan conducted a four-year BLV disease control program in a 3,000-cow dairy farm. “A diagnostic test allows producers to control BLV by identifying the most infectious cattle for segregation or culling while retaining the majority of ELISA-positive cattle, which are lowly infectious to their herd mates,” said lead author Tasia M. Taxis, PhD (Department of Animal Science, Michigan State University, East Lansing, MI, USA). The article describes an interventional field trial that used three diagnostic tests: a blood lymphocyte count, a BLV enzyme-linked immunosorbent antibody assay (ELISA), and a BLV quantitative-polymerase chain reaction (qPCR) used to measure the blood proviral load (PVL).

The specifics on how the tests were used are outlined in the article. The first year, all cattle with a blood lymphocyte count over 10,000 cells per microliter were removed. “As these high lymphocyte cows became scarcer, the herd transitioned to using ELISA to test for BLV antibodies in milk or blood, with all ELISA-positive samples being further tested for PVL determination by qPCR,” said Taxis. As the PVL value of the herd decreased over time, the PVL threshold for segregation or culling also decreased and changed on a weekly basis to the point where any animal with a detectable PVL was immediately culled.



Caption: An interventional field trial controlled bovine leukemia virus (BLV) infection using three diagnostic tests: a blood lymphocyte count, a BLV enzyme-linked immunosorbent antibody assay (ELISA), and a BLV quantitative-polymerase chain reaction used to measure the blood proviral load (PVL). (Credit: T. Taxis).

Using this BLV control program, the scientists report a decrease in mean PVL within the first year and a total of six cows with a detectable PVL at the end of the second year. “At the end of the third year, 0.85% of the tested cows were BLV ELISA positive, and animals with detectable PVL had decreased from 284 at the start of the project to zero animals at the end of the project,” said Taxis. The authors point out that their study reports on a trial at only one dairy farm and that the protocol evolved over time. However, Taxis added that this study “demonstrated that BLV diagnostic tests could be used to reduce or eliminate BLV infections without the costly simultaneous culling of all antibody-positive cattle.”

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

---

### Notes for editors

“Controlling bovine leukemia virus in a large dairy herd by selective culling based on diagnostic testing,” by T. M. Taxis, R. M. Harbowy, D. Nilas, K. R. B. Sporer, and P. C. Bartlett (<https://doi.org/10.15232/aas.2022-02347>), *Applied Animal Science*, volume 39, issue 2 (April 2023), published by FASS Inc. and Elsevier.

This article is available at <https://doi.org/10.15232/aas.2022-02347>.

Full text of the article is also available to credentialed journalists upon request; contact Brittany Morstatter at +1-217-356-3182 ext. 143 or [ARPAS@assoqh.org](mailto:ARPAS@assoqh.org) to obtain copies. To schedule an interview with the author(s), please contact Tasia M. Taxis at [taxistas@msu.edu](mailto:taxistas@msu.edu).

### About *Applied Animal Science*

*Applied Animal Science* (AAS) is a peer-reviewed scientific journal and the official publication of the American Registry of Professional Animal Scientists (ARPAS). In continuous publication since 1985, AAS is a leading outlet for animal science research and is indexed by Scopus and ESCI (Clarivate’s Emerging Sources Citation Index). The journal welcomes novel manuscripts on applied technology, reviews on the

use or application of research-based information on animal agriculture, commentaries on contemporary issues, short communications, and technical notes. Topics that will be considered for publication include (but are not limited to) feed science, farm animal management and production, dairy science, meat science, animal nutrition, reproduction, animal physiology and behavior, disease control and prevention, microbiology, agricultural economics, and environmental issues related to agriculture. Themed special issues also will be considered for publication. [www.appliedanimalscience.org](http://www.appliedanimalscience.org)

### **About the American Registry of Professional Animal Scientists (ARPAS)**

The American Registry of Professional Animal Scientists (ARPAS) is the organization that provides certification of animal scientists through examination, continuing education, and commitment to a code of ethics. Continual improvement of individual members is catalyzed through publications (including the AAS journal) and by providing information on educational opportunities. ARPAS is affiliated with five professional societies: American Dairy Science Association, American Meat Science Association, American Society of Animal Science, Equine Science Society, and Poultry Science Association. [www.arpas.org](http://www.arpas.org)

### **About FASS Inc.**

Since 1998, FASS has provided shared management services to not-for-profit scientific organizations. With combined membership rosters of more than 10,000 professionals in animal agriculture and other sciences, FASS offers clients services in accounting, membership management, convention and meeting planning, information technology, and scientific publication support. The FASS publications department provides journal management, peer-review support, copyediting, and composition for this journal; the staff includes several BELS-certified ([www.bels.org](http://www.bels.org)) technical editors and experienced composition staff. [www.fass.org](http://www.fass.org)

### **About Elsevier**

As a global leader in information and analytics, [Elsevier](http://elsevier.com) helps researchers and healthcare professionals advance science and improve health outcomes for the benefit of society. We do this by facilitating insights and critical decision-making for customers across the global research and health ecosystems.

In everything we publish, we uphold the highest standards of quality and integrity. We bring that same rigor to our information analytics solutions for researchers, health professionals, institutions and funders.

Elsevier employs 8,700 people worldwide. We have supported the work of our research and health partners for more than 140 years. Growing from our roots in publishing, we offer knowledge and valuable analytics that help our users make breakthroughs and drive societal progress. Digital solutions such as [ScienceDirect](http://sciedirect.com), [Scopus](http://scopus.com), [SciVal](http://scival.com), [ClinicalKey](http://clinicalkey.com) and [Sherpath](http://sherpath.com) support strategic [research management](#), [R&D performance](#), [clinical decision support](#), and [health education](#). Researchers and healthcare professionals rely on over 2,800 digitized journals, including [The Lancet](#) and [Cell](#); our 46,000+ eBook titles; and our iconic reference works, such as *Gray's Anatomy*. With the [Elsevier Foundation](#) and our external [Inclusion & Diversity Advisory Board](#), we work in partnership with diverse stakeholders to advance [inclusion and diversity](#) in science, research and healthcare in developing countries and around the world.

Elsevier is part of [RELX](#), a global provider of information-based analytics and decision tools for professional and business customers. [www.elsevier.com](http://www.elsevier.com)