

OARDC Research Enhancement Competitive Grants Program

 SEEDS
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Effects of Vitamin E and Aspirin on Disease in Cattle

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The Bovine Respiratory Disease Complex, or “shipping fever,” causes approximately \$600 million in annual losses to the North American beef cattle industry. This potentially deadly disease is caused by viral and bacterial infections of the respiratory tract. Despite considerable effort, no generally effective prevention or control measures have been identified for this disease. Because vaccinations and antibiotic treatments are only moderately successful, alternative approaches need to be identified. ►

A naturally occurring chemical 3-Methylindole (3-MI) found in cattle increases with dietary changes and stress. Results of this research show that the increase of 3-MI during times of stress combined with exposure to non-fatal Bovine Respiratory Syncytial Virus (BRSV) resulted in a higher incidence of shipping fever. Thus, controlling the combined exposure may be an important step in preventing respiratory disease in feedlot cattle and reducing losses associated with the disease.

Aspirin has been shown to decrease the severity of lesions in the lungs caused by 3-MI because aspirin decreases the natural conversion of 3-MI to its toxic product. Vitamin E, acting as an antioxidant, can decrease the toxicity of any products produced from 3-MI. Thus, the OARDC-funded researchers examined the combination of aspirin and Vitamin E as a possible treatment regimen to prevent respiratory disease.

CHALLENGES

Shipping fever is a costly and widespread problem for the cattle industry. Current treatments, including vaccines and antibiotics, are not totally effective for controlling shipping fever. It is necessary to identify alternative treatments to decrease the devastating losses incurred by the beef cattle industry.

ACHIEVEMENTS

From this study, OARDC researchers found that treatment with aspirin and Vitamin E may decrease the toxic effects of 3-MI and reduce the susceptibility to respiratory viruses and shipping fever.

THE FUTURE

Results from this initial study were presented in two papers published in the American Journal of Veterinary Research. Additional funding in the amount of \$205,000 has been obtained to further characterize the role of 3-MI in the Bovine Respiratory Disease Complex.

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