Protecting Animal and Human Health

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Promoting the proper use of antibiotics in animal agriculture to preserve their efficacy for both animal and human health is of prime importance. That’s a goal of the International Consortium for Antimicrobial Stewardship in Agriculture (ICASA), which Noble Research Institute became a founding member of in 2018. The industry-oriented program was created by the nonprofit Foundation for Food and Agriculture Research to advance research projects related to antimicrobial stewardship and antimicrobial resistance in animal agriculture. As ICASA continues to develop and grow, we want to take this opportunity to share more about our work with this important organization.

IMPROVING ANTIBIOTIC STEWARDSHIP THROUGH INNOVATIONS AND PARTNERSHIPS

ICASA was created to accelerate innovation and improve antibiotic stewardship by building the cross-sector partnerships critical to making advances on a truly broad scale. The consortium seeks long-term solutions to major drivers of antibiotic use by field-testing new technologies and management practices that can improve animal health and welfare, promote responsible and judicious antibiotic use, and benefit animal agriculture as well as the general public.

ICASA's research promotes the judicious use of antibiotics and advances animal health, productivity and welfare, as well as food safety for consumers and economics for producers. As a vehicle for collaboration and exposure to new ideas, the consortium framework of ICASA streamlines the development of new partnerships and projects to drive significant advances that benefit both the public and private sectors.

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A number of working groups facilitate projects within the consortium. Currently, the five working groups are technologies, liver abscesses, metaphylaxis, late-day bovine respiratory disease (BRD) and swine health. These five working groups were determined to be high priority areas by the executive committee. Each working group has met and is working to develop its approaches to address these issues. As these approaches are developed, they will be submitted as grant requests to ICASA and FFAR. To receive a grant, the project must be approved by the working group, the executive committee and FFAR. We expect many new projects to be approved and begin within the next year.

FIRST GRANT FOCUS: CAUSES OF LATE-DAY BRD IN HIGH-PERFORMING FEEDLOT CATTLE

The first and only grant project approved and started so far is titled “Identifying potential causes of late-day bovine respiratory disease in high-performing feedlot cattle.” Noble is a grant partner, along with Hy-Plains Feedyard, Veterinary Research & Consulting Services, U.S. Meat Animal Research Center and the Great Plains Veterinary Educational Center.

We know that cow-calf producers have selected for high-performing cattle over the years. These high-performing cattle are characterized by high average daily gain (ADG) and improved feed conversion, and yield a valuable carcass based on carcass weight, yield grade and quality grade. However, an increased incidence of BRD has been observed in high-performing cattle at approximately 60 to 90 days on feed. As the incidence of disease increases, the animals require more antibiotics, and the timing of disease occurs much later in the feeding period compared to traditional disease incidence. Late-feeding-period diseases are an industry-wide and growing economic concern, because significant resources have been invested in the animals, and there are potential negative impacts on product quality when disease occurs just prior to processing. This is a major issue, as animals have been selected for improved performance using Expedited Progeny Differences (EPDs) for years, with significant public and private investments in breeding technologies and animals. The high morbidity both detracts from the advantages of selecting for genetically superior animals and results in more antibiotic use for prevention or treatment. Despite advancements in technology and genetics, morbidity and mortality continue to increase in the feedyard.

As a part of this grant project, we will evaluate several different areas, including the effect of rate of gain and length of backgrounding on calf health and performance in the feedyard. Another effort will be to convene leading industry personnel to combine their knowledge on the topic. We will do more data analysis on vaccinations and timing, along with an evaluation on genetics, feed intake and physiological responses of these types of cattle. We are only at the tip of the iceberg with this and hope to learn much more that will guide further research.

These are just a few examples of how Noble is involved with FFAR and, more specifically, ICASA. As the work of ICASA progresses across many fronts, we will be sure to update you through these Noble News and Views articles. We believe that the outcomes of this consortium’s efforts will provide viable solutions for many of the problems animal agriculture faces. If you want further information on ICASA’s activities, don’t hesitate to reach out to us here at Noble.