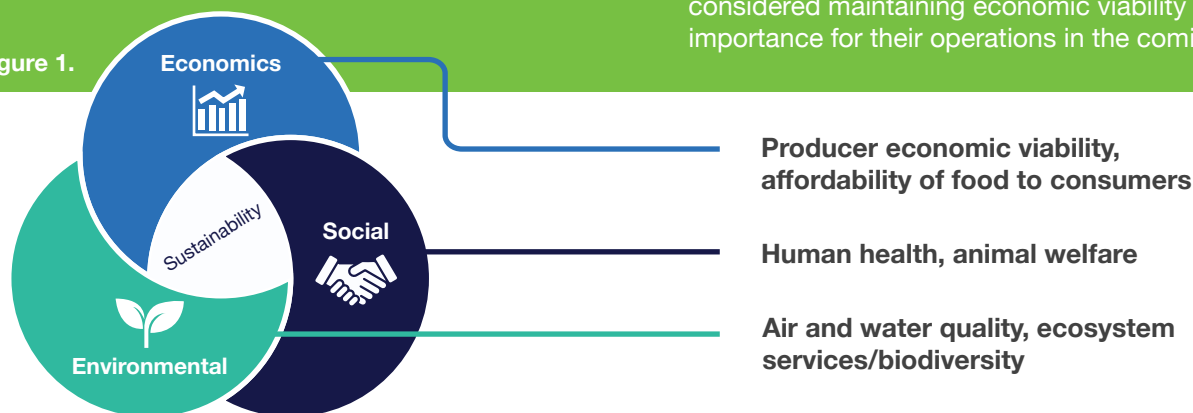


Making Sense – and Cents – of Environmental Sustainability

Sustainability means meeting the needs of the present without sacrificing the ability of future generations to meet their own needs. This concept isn't foreign to you and the beef industry...in fact, it likely embodies what you and many others have been doing for decades to build and pass down the legacy of your operation from one generation to the next.

True sustainability is found at the intersection of environmental, economic, and social aspects (Figure 1.) And while 80% of feedyard managers recently surveyed by Elanco Animal Health agree that it's important for their operation to be sustainable¹, there's no denying the added emphasis producers place on the economic aspects of sustainability. In fact, the same survey found that more than half of the producers surveyed considered maintaining economic viability a top trend of importance for their operations in the coming years.¹

Figure 1.



So, can environmental sustainability be improved without jeopardizing economic viability? **Absolutely.**

The Role of Animal Health Innovations in Improving Environmental Sustainability

The beef industry's greatest environmental challenges are related to land use, nutrient management, water use and emissions. These include concerns around methane – of which enteric methane emissions represent more than 90% of the beef industry's direct greenhouse gas emissions². Ammonia gas emissions represent concerns, as well, including the eutrophication of waterways and the formation of atmospheric haze and noxious odors³. A lifecycle assessment of U.S. beef cattle production – from birth, including feed production (hay, silage, grains), to packer – estimated that 34% of U.S. ammonia gas emissions could be attributed to beef cattle production.⁴

Enter innovation. Elanco aims to build a portfolio that supports producers in their sustainability efforts.

We've already started this journey through the launch of Experior™ (lubabegron Type A medicated article) – the first U.S. Food and Drug Administration-approved product labeled to reduce ammonia gas emissions from an animal or its waste.⁵ In clinical research studies conducted for approval, Experior was found to reduce ammonia gas emissions from cattle by 13 to 16% - without hindering animal performance measures (average daily gain, feed efficiency, or carcass characteristics)*. Experior offers a flexible-use label and 11-week feeding window with a favorable trade profile.

Experior is thought to act by increasing nitrogen (amino acid) uptake and the amount of nitrogen retained in the carcass as muscle protein, thereby reducing the amount of urea excreted in manure (manure is considered the urine and feces combined)⁶ (Figure 2).

*Animal performance measures (average daily gain, feed efficiency, or carcass characteristics) were not negatively affected by Experior at any dose, compared to animals not fed Experior.

¹Feedyard Manager Sustainability Perceptions Research. Elanco Animal Health. Data on File.

²Colorado State University AgNext. 2021. Quick Facts on Cattle Climate Impacts. <https://agnext.colostate.edu/wp-content/uploads/sites/14/2021/12/Quick-Facts-on-Cattle-Impacts.pdf>. Accessed 13 February 2023.

³Experior FONSI, page 3. <https://animaldrugsatfda.fda.gov/adafda/app/search/public/document/downloadFonsi/1271>. Accessed August 2020.

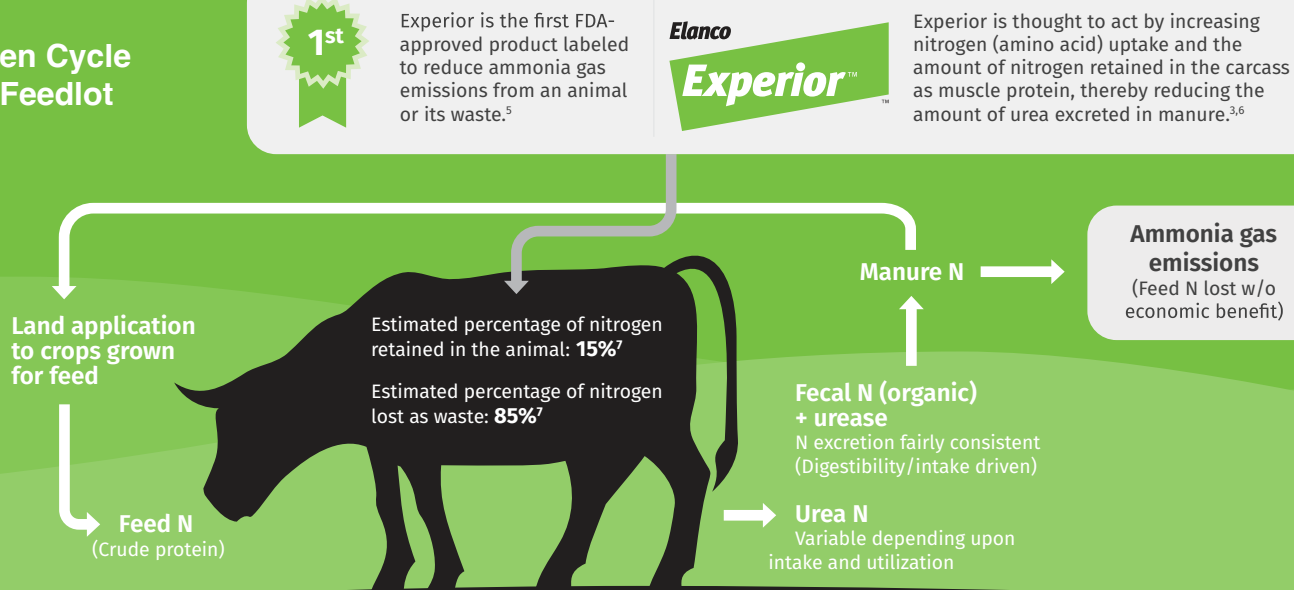
⁴Rotz, CA, Asem-Hiablie, S, Place, S, Thoma, G. Environmental Footprints of Beef Cattle Production in the United States. Agricultural Systems [Internet]. 2019 Feb [cited 2020 Aug 13]. 169:1-13. <https://www.sciencedirect.com/science/article/pii/S0308521X18305675>

⁵FDA Approves Experior for Reduction of Ammonia Gas Released from Beef Cattle Waste. U.S. Food and Drug Administration. 6 November 2018.

⁶Environmental Assessment for the use of Experior™ (lubabegron Type A medicated article) for reduction of ammonia gas emissions per pound of live weight and hot carcass weight in beef steers and heifers fed in confinement for slaughter during the last 14 to 91 days on feed. <https://animaldrugsatfda.fda.gov/adafda/app/search/public/document/downloadEA/1311>. June 2018.

Figure 2.

Nitrogen Cycle in the Feedlot



Improving nitrogen utilization has a direct correlation to a producer's highest input cost – feed. Nitrogen enters the feedlot system primarily as protein via the cattle's feed. When cattle consume the feed, **85% of nitrogen is lost as waste, while 15% is retained in the animal⁷.**

An Emerging Frontier: Monetizing Sustainability Through Carbon Market Participation

While continuously improving environmental sustainability is necessary for the long-term viability of the beef industry, cattle producers must also maintain the ability to run a profitable business. There are economic opportunities emerging for cattle producers to be rewarded financially for tracking and improving their environmental footprint.

Telling the Beef Industry's Sustainability Story

Regardless of the innovations or progressive approaches to improving sustainability that are implemented on an operation, the reputation of the beef industry is contingent on the public's awareness of its commitment to improvement. Consumer market research among beef-eating consumers recently found that consumers are willing to make small changes to improve sustainability and have trust in farmers and ranchers to be good stewards of animals and the environment⁸. Not sure where to start? **Elanco can help.**



Ammonia Gas Emissions



Nitrogen Utilization^{3,6}



Supporting your Sustainability Efforts

Talk to your Elanco representative or visit www.experiorbeef.com to learn more.

⁷Cole, NA, Todd, RW. Nitrogen and phosphorus balance of beef cattle feedyards. Proceedings of the Texas Animal Manure Management Issues Conference [Internet]. 2009 Sep 28 [cited 2020 Sep 17]. 243602:17-24. <https://www.ars.usda.gov/research/publications/publication/?seqNo115=243602>.

⁸Consumer Sustainability Perceptions Research. Elanco Animal Health. Data on File.

Important Safety Information for Experior

Caution: Not approved for use in breeding animals because safety and effectiveness have not been evaluated in these animals. Do not allow horses or other equines access to feed containing Experior. A decrease in dry matter intake may be noticed in some animals.

The label contains complete use information, including cautions and warnings. Always read, understand, and follow the label, and use directions.

Indications for use: For the reduction of ammonia gas emissions per pound of live weight and hot carcass weight in beef steers and heifers fed in confinement for slaughter during the last 14 to 91 days on feed.

Directions for use: Feed 1.25 to 4.54 g/ton (1.39 to 5 ppm) of complete feed (90% dry matter basis) to provide 13- 90 mg lubabegron/head/day continuously to beef steers and heifers fed in confinement for slaughter as sole ration during the last 14 to 91 days on feed.

Based on existing information, reliable predictions of the reduction of ammonia gas emissions cannot be made on a herd, farm, or larger scale.