

The state of research on finishing cattle nutrition



To improve the quality and amount of meat, beef animals in feedlots are fed an energy-dense diet in the months before processing—a process called finishing. The NCCC308 Multistate Research Coordinating and Information Exchange Group has met yearly since 1982 to share ideas and research on the finishing cattle industry. The committee has four main objectives:

1 Advance the use of carbon from energy feeds to improve national **food security** and compete in an energy economy.



3 Use management strategies and technologies to increase the production **efficiency and quality** of feedlot cattle.



2 Improve the **environmental sustainability** of the feedlot industry through conservation and nutrient management.



4 Enhance management strategies that improve animal **health and well-being**.



To celebrate the technological advances and increased productivity that have come from this research, the committee has developed a featured collection of manuscripts related to these objectives.



NCCC308: Nutrition and Management of Feedlot Cattle to Optimize Performance, Carcass Value, and Environmental Compatibility – Feature Collection - Nutrition and Management of Finishing Cattle

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The NCCC308 Multistate Research Coordinating and Information Exchange Group currently consists of members from 18 Agricultural Experiment Stations with a long and strong history in conducting applied finishing cattle nutrition and management research and Extension. The committee has met yearly since 1982, typically at a University or research center, in May. The meeting has been an integral component of the professional development of the committee members allowing for sharing of current research results and ideas, touring of research and/or industry facilities, development of new collaborative research and Extension initiatives, and interacting and networking with committee members and other research, Extension, and industry personnel across North America. Over the lifetime of the NCCC308 committee, the finishing cattle industry has undergone significant change, including implementing several technological advances and a dramatic increase in corn production and corn byproduct availability. Over time, the committee's research and Extension activities have greatly influenced the development and optimization of feeding and management strategies. These activities have contributed to increased productivity and efficiency of beef cattle in feedlots. For example, members of the committee have made significant research and Extension contributions on optimizing corn grain processing, use of corn wet and dry milling byproducts, development and testing of new growth-promoting technologies, and refinement of energy and nutrient requirement models. In recent years, the committee has broadened in scope with the addition of new members with expertise in not only applied finishing cattle feeding and management but also in emerging areas such as nutritional and management effects on the ruminal microbiome, nutrient/gene interactions, immunology, and environmental impact. Besides developing this featured collection for the journal, the committee also organized a symposium on the nutrition and management of feedlot cattle at the Midwest Animal Sciences meeting in Omaha in March of 2022.

The NCCC308 committee, representing most of the cattle-feeding states in the U.S., focuses on research and education efforts supporting the cattle feeding industry in the North Central Region and beyond. This featured collection titled “Nutrition and Management of Finishing Cattle” consists of manuscripts representing some of the current research being conducted within and across the research programs of the current committee members. The specific objectives (with representative manuscripts published in this collection) of the committee are to:

1. Enhance the utilization of carbon from energy feeds to compete in an energy economy and improve national food security (Acharya et al., 2023; Coulson et al., 2023; Francis et al., 2023; Hamilton et al., 2023; Larson et al., 2023a and b; Tarnonsky et al., 2023a and b; Troyer et al., 2023; Wilson et al., 2023; Winders et al., 2023).
2. To enhance the environmental sustainability of the feedlot industry through conservation and nutrient management (Carlson et al., 2023; Pittaluga et al., 2023).
3. To enhance the production efficiency and quality of feedlot cattle through management strategies and technologies (Cooke et al., 2023; Jaborek et al., 2023a, b, and c; Nickles et al., 2023; Podversich et al., 2023; Waldon et al., 2023).
4. To enhance management strategies that improve animal health and well-being (Beenken-Bobb et al., 2023; Dornbach et al., 2023; Gouvêa et al., 2023; Rients et al., 2023; Silva et al., 2023).

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