

Special Issue

Rumen Microbiome and Metabolome in Dairy Cattle

Message from the Guest Editors

There is an increasing need for innovation in dairy production to address food insecurity in the face of rapid climate change and population growth in low- and middle-income countries. The rumen microbiome plays an important role in the digestion and absorption of nutrients from the feed in cattle and also in their health status. Therefore, its study is of paramount importance in optimizing milk production efficiency, milk quality, and the environmental impact of dairy farming. Among the most abundant metabolites produced during microbial fermentation in the rumen are volatile fatty acids, which are the main source of energy for the animal, amino acids, carbohydrates, minerals, and vitamins. The metabolism of the microbiome also plays an important role in the animal's absorption of these nutrients, as well as in the production of hormones and other bioactive compounds. The composition and diversity of the rumen microbiome are influenced by the type of feed, dietary supplements, antibiotics, environment, and genetics of the animal. In this issue, we make the case for innovative research to impact the rumen microbiome and contribute to addressing this urgent global challenge.

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Animals is an on-line open access journal that was first published in 2011. *Animals* adheres to rigorous peerreview and editorial processes and publishes only high quality manuscripts that address important issues in the many varied disciplines that involve animals, with a focus on animal science, animal welfare and animal ethics. *Animals* is covered in the Science Citation Index Expanded (SCIE) in Web of Science, with the latest Impact Factor: 2.7 (2024, ranks 15/86 (Q1) in 'Agriculture, Dairy & Animal Science'; 21/170 (Q1) in 'Veterinary Sciences'), 5-Year Impact Factor: 3.2.

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