

Editorial Note on Gastrointestinal functionality in animal

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Editorial

Effective functionality of the gastrointestinal tract (GIT) and its health, are important factors in determining animal performance. Several, complex mechanisms are involved in the regulation of GIT functionality and health, therefore it is crucial to deepen our knowledge of these interactions so that strategies for the modulation of GIT functionality and health, in context of improved animal performance, can be developed. The concept of “gut health” has started to attract significant interest within the animal science community, however a clear definition of gastrointestinal health and functionality and how it can be measured is lacking. Therefore, this review will present a new definition of gastrointestinal functionality and will address how optimal gastrointestinal functionality can promote animal performances and welfare. The key components of gastrointestinal functionality reviewed in this article are: diet, effective structure and function of the gastrointestinal barrier, host interaction with the gastrointestinal microbiota, effective digestion and absorption of feed and effective immune status. While the relationships between these areas is extremely complex, a multidisciplinary approach is needed to develop nutritional strategies that would allow farm animals to become more resilient to the environmental and physiological challenges that they will have to endure during their productive career. As the demand of animal products from the rapidly growing world human population is ever-growing, the aim of this review is to present animal and veterinary scientists and nutritionists, a new definition of gastrointestinal functionality that can be used to establish a multidisciplinary approach to increase animal health, welfare and performance.

Optimal gastrointestinal functionality is essential for sustainable animal production. Effective functionality of the gastrointestinal tract (GIT) and its health are important factors in determining animal performance (growth, milk yield, meat and egg quality). Several, complex mechanisms are involved in GIT functionality and health, therefore it is crucial to deepen our knowledge of these interactions so that strategies for the modulation of GIT functionality and health, in context of improved animal performance, can be developed. Over the last few decades, the adoption of genetic selection for high growth and reproductive traits, the implementation of advanced husbandry techniques (hygiene, vaccination, housing, transport, etc.), improved understanding in digestive physiology and dietary requirements of farmed animals has led to significant gains in productive performance. In this regard, a crucial question for animal scientists is: “has farm animal performance reached its genetic/physiological limits?”

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