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Comment

Comment on "Maize and Grass Silage Feeding to Dairy Cows Combined with Different Concentrate Feed Proportions with a Special Focus on Mycotoxins, Shiga Toxin (stx)-Forming *Escherichia coli* and *Clostridium botulinum* Neurotoxin (BoNT) Genes: Implications for Animal Health and Food Safety". *Dairy* 2020, *1*, 91–125

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Dänicke and colleagues carried out an interesting experiment with late-lactating cows fed a diet with maize and grass silage (MS, GS) combined with different portions of concentrate in the ration (20% and 60% on a dry matter basis). Apart from an extensive analysis of silages in terms of microbiological, fungal and other contaminants, the authors highlighted a critical issue. Feeding MS with 60% concentrate in the ration was associated with subacute ruminal acidosis (SARA) causing a reduction in dry matter intake, and in cow performance. Even more interestingly, feeding MS resulted in higher ruminal lipopolysaccharides (LPS) concentration, lower rumen pH values, higher absolute *Escherichia coli* counts and increased proportions of shiga toxin-positive *E. coli* in rectal faces.

Shiga toxin-producing *E. coli* (STEC), also referred to as verocytotoxigenic *E. coli* (VTEC), is one of the most common causes of gastrointestinal illness around the world. These microorganisms are frequently associated with severe forms of infection including haemorrhagic colitis (HC) and haemolytic uraemic syndrome (HUS). The first infections caused by STEC were described in 1982, in relation to the ingestion of undercooked hamburgers [1]. Recently, the last edition of the European Union Summary Report on Trends and Sources of Zoonoses, Zoonotic Agents and Foodborne Outbreaks in 2016, reported that most of the STEC foodborne outbreaks were associated with the consumption of food of animal origin (meat, milk and milk products) and with tap water (including well water). The European Food Safety Authority (EFSA) [2] stated that during the period 2012–2017, a total of 330 STEC outbreaks were reported in 18 countries of the European Economic Area (EU/EEA). Of all these outbreaks reported, a food vehicle was identified for 164 outbreaks (49.7%), showing that 24% of STEC outbreaks could be attributed to 'bovine meat and products thereof', and 22% to 'milk and other dairy products'. Therefore, this is only one of the examples clearly demonstrating that human health is a consequence of animal health, according to the One Health approach. Based on this, ruminant health is a critical issue and should be firstly ensured starting from ruminant nutrition in order to avoid systemic acute and subacute inflammation conditions, as acute ruminal acidosis, and SARA-associated with compromised epithelial barriers, thus leading to leaky gut, which could facilitate LPS-induced inflammation. As suggested in the review by Bradford and colleagues [3], not only acute but also subacute inflammatory conditions, particularly if repeated in time, can promote metabolic diseases in cows by disrupting homeostasis. Scientific research on livestock, together with advising appropriate nutrition strategies, should also suggest to farmers nutraceutical and dietary bioactive molecules in

order to sustain a healthy degree of inflammation in animals, as in transition cows, supporting a rapid recovery of homeostasis.

Hence, livestock health is essential for healthy food and human health, and research should focus on appropriate nutrition strategies to control and modulate the degree of inflammatory conditions in livestock.

Conflicts of Interest: The authors declare no conflict of interest.

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