Parallel Session L1
Regional Dimensions

Monday, 16 March 2015

14:00–18:00

69. Methane emission efficiency as a function of grazing management in Southern Brazilian grazing systems

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Ruminant livestock production is an expanding sector in Brazil and accounts for more than 70% of the national methane (CH_4) emission. As most of the livestock is raised on pastures, grazing management is the pivotal factor affecting animal production and CH_4 emission efficiency. However, actual mitigation potential of grazing management on enteric CH_4 emission is poorly documented. We report here the results from various grazing experiments conducted in South Brazil between 2011 and 2014 on the relationships between grazing management, vegetation structure and quality, grazing behaviour, enteric methane emission and animal production. In native grassland, heifers continuously stocked on moderate grazing intensity (herbage allowance of 3 kg DM / kg LW) resulted in highest live weight (LW) gain per individual and per unit area basis, as well as high CH_4 emission per individuals. However, CH_4 emission efficiency was improved as CH_4 emissions per kg of LW gain was minimized (0.8 kg CH_4 / kg LW gain). In integrated crop-livestock systems (ICLS) with steers continuously stocked on black oat/Italian ryegrass pastures, the moderate grazing intensity maximized LW gain and optimized CH_4 emission efficiency. In another ICLS trial, lambs continuously stocked resulted in better CH_4 emissions efficiency than rotational stocking, mainly because animals had opportunity to select a better diet. However, an experiment contrasting rotational stocking strategies showed good results when moderate grazing intensity was assured by pre and post grazing sward targets based on intake rate maximization and flexible stocking cycles. In all experiments the relationship between CH_4 emissions and dry matter intake was significant, but weak ($R2 < 0.25$), pointing out other explaining factors such as forage digestibility and inter-individual variations. These sets of results indicate that despite grazing systems types, moderate grazing is essential to optimize enteric methane emission efficiency.

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