

Is spontaneous rumen acidosis related to feeding behaviour in goats?

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Subacute rumen acidosis (SARA) is generally associated with off-feed periods and is quite often detected in intensive ruminant production systems. It appears in an unpredictable manner in a herd and only some animals are affected at a given time. It is also quite difficult to study experimentally spontaneous acidosis due to the unpredictability of its occurrence. Nevertheless, it seems that there is a clear relationship between spontaneous rumen acidosis and feeding behavior in goats. This paper aims to better understand the driving force by using different measurements obtained simultaneously in cannulated dairy goats from our experimental unit fed with total mixed rations (TMR) containing different proportions of concentrate.

Feeding behavior was characterized by different variates: proportion of dry matter eaten 90 min after the afternoon feeding which corresponded to two thirds of the daily feed allowance (P90), sorting behavior (ratio between cellwall intake and cellwall given) or chewing durations. Rumen pH was measured either with indwelling probes or after direct rumen fluid sampling.

Bouts of spontaneous acidosis were generally of short duration (one day) with a clear rebound of several days of relatively high rumen pH (>6.5) before recovery of pre-acidosis values. The pH decrease was followed by a decrease in DMI, reaching a nadir around 2 d after the start of the episode. The pH decrease seemed to be due to the combination of a high intake and a high rate of intake. The intensity of the pH rebound was linked to different animal feeding strategies: a decrease in dry matter intake, a decrease in intake rate (estimated by P90), an increase in the ratio "chewing duration/intake duration" or an increase in sorting behavior. Goats presented different susceptibilities to SARA and different feeding strategies to face it. Some of them never suffered from acidosis and others presented more than one episode of acidosis. This between-animal variability could be due to their feeding behaviour and/or their rumen fermentation profile.

A future challenge is to better understand the between-animal variability and to find the best criteria to phenotype the animals for the risk of SARA when fed a high energy diet.

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