

## **Influence of Improved Roughage Quality and Period of Meal Termination on Digesta Load in the Digestive Organs of Goats**

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**Abstract :** Ruminants are known to relish roughage for productivity but the effect of its quality on digesta load in rumen, omasum, abomasum and other distal organs of the digestive tract is yet unknown. Reticulorumen fill is a strong indicator for long-term control of intake in ruminants. As such, the measurement and prediction of digesta load in these compartments may be crucial to productivity in the ruminant industry. The current study aimed at determining the effect of (a) diet quality on digesta load in digestive organs of goats, and (b) period of meal termination on the reticulorumen fill and digesta load in other distal compartments of the digestive tract of goats. Goats were fed with urea-treated hay (UTH), urea-sprayed hay (USH) and non-treated hay (NTH). At the end of eight weeks of a feeding trial period, upon termination of a meal in the morning, afternoon or evening, all goats were slaughtered in random groups of three per day to measure reticulorumen fill and digesta loads in other distal compartments of the digestive tract. Both diet quality and period affected ( $P < 0.05$ ) the measure of reticulorumen fill. However, reticulorumen fill in the evening was larger ( $P < 0.05$ ) than afternoon, while afternoon was similar ( $P > 0.05$ ) to morning. Also, diet quality affected ( $P < 0.05$ ) the wet omasal digesta load, wet abomasum, dry abomasum and dry caecum digesta loads but did not affect ( $P > 0.05$ ) both wet and dry digesta loads in other compartments of the digestive tract. Period of measurement did not affect ( $P > 0.05$ ) the wet omasal digesta load, and both wet and dry digesta loads in other compartments of the digestive tract except wet abomasum digesta load ( $P < 0.05$ ) and dry caecum digesta load ( $P < 0.05$ ). Both wet and dry reticulorumen fill were correlated ( $P < 0.05$ ) with omasum ( $r = 0.623$ ) and ( $r = 0.723$ ), respectively. In conclusion, reticulorumen fill of goats decreased by improving the roughage quality; and the period of meal termination and measurement of the fill is a key factor to the quantity of digesta load.

**Keywords :** digesta, goats, meal termination, reticulo-rumen fill

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