

## The Effects of Seasonal Variation on the Microbial-N Flow to the Small Intestine and Prediction of Feed Intake in Grazing Karayaka Sheep

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**Abstract :** The objectives of the present study were to estimate the microbial-N flow to the small intestine and to predict the digestible organic matter intake (DOMI) in grazing Karayaka sheep based on urinary excretion of purine derivatives (xanthine, hypoxanthine, uric acid, and allantoin) by the use of spot urine sampling under field conditions. In the trial, 10 Karayaka sheep from 2 to 3 years of age were used. The animals were grazed in a pasture for ten months and fed with concentrate and vetch plus oat hay for the other two months (January and February) indoors. Highly significant linear and cubic relationships ( $P < 0.001$ ) were found among months for purine derivatives index, purine derivatives excretion, purine derivatives absorption, microbial-N and DOMI. Through urine sampling and the determination of levels of excreted urinary PD and Purine Derivatives / Creatinine ratio (PDC index), microbial-N values were estimated and they indicated that the protein nutrition of the sheep was insufficient. In conclusion, the prediction of protein nutrition of sheep under the field conditions may be possible with the use of spot urine sampling, urinary excreted PD and PDC index. The mean purine derivative levels in spot urine samples from sheep were highest in June, July and October. Protein nutrition of pastured sheep may be affected by weather changes, including rainfall. Spot urine sampling may useful in modeling the feed consumption of pasturing sheep. However, further studies are required under different field conditions with different breeds of sheep to develop spot urine sampling as a model.

**Keywords :** Karayaka sheep, spot sampling, urinary purine derivatives, PDC index, microbial-N, feed intake

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