

# Small Ruminants: Digestive Capacity Differences between Frugivores and Browsers?

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Small ruminants are generally classified as either browsers or frugivores. We hypothesize that browsers may be able to digest insoluble fiber diets better than can frugivores. We compared intake and digestion in the following four species: two Cervidae: red brocket (*Mazama americana*), body weight 20 kg and pudu (*Pudu pudu*), 9 kg, and two Bovidae: bay duiker (*Cephalophus dorsalis*), 12 kg and Maxwell's duiker (*C. maxwelli*), 9 kg. Rations comprised: a commercial grain and alfalfa pellet, a small amount of vegetables, and mixed hay. Across species, neutral-detergent fiber (insoluble fiber) level consumed averaged  $34.2 \pm 2.6\%$  of dry matter [DM] while the crude protein consumed averaged  $16.1 \pm 0.5\%$  DM. Despite consuming the same diet, bay duikers digested significantly less ( $p = 0.0167$ ) than the other three species. The pudu digested the diet best ( $75.2\%$ DM), followed by brocket ( $73.2\%$ ), Maxwell's duikers ( $73.0\%$ ), and bay duikers ( $67.1\%$ ). Considering body sizes, these results are surprising. Pudus browse in the wild, Maxwell's duiker and brocket are frugivorous with some browsing, while bay duikers are more frugivorous. Possibly the frugivores require a lower fiber diet or a diet of soluble fibers, as might be found in wild fruits, instead of the insoluble fibers from corn, alfalfa, and grass. Passage trials were conducted on the two smallest species. The mean transit time for pudu was  $29.9 \pm 0.8$  h, and for the Maxwell's duiker was  $42.2 \pm 6.4$  h. The results are compared to trials performed concurrently on mouse deer, an even smaller ruminant (2.8 kg), fed a diet slightly lower in insoluble fiber, and higher in fruit.

key words: pudu, red brocket, Maxwell's duiker, bay or black-backed duiker