

EXAMINATION OF SOME VARIANCE COMPONENTS OF N-ALKANE ESTIMATED INTAKE AND DIGESTIBILITY IN CATTLE GRAZING ON KIKUYU (*Pennisetum clandestinum*) PASTURE

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Two grazing experiments using yearling Holstein-Friesian and Hereford cattle feeding on kikuyu (*Pennisetum clandestinum*) pasture were carried out to examine the sources of variation of estimates of intake and digestibility obtained using of n-alkanes method. The n-alkane technique increases both the accuracy and precision in measuring intake and digestibility which are key parameters in describing the nutritive value of forages, e.g. kikuyu pasture. According to the theory of this method, the intake estimate is not affected by individual digestibility of the ration or the marker recoveries. Intake was calculated from the fecal concentrations of the plant odd chain alkanes i.e. C31, C33 and C35 compared to the even chain alkane, C32 administered as a marker. The analyses used data from sixteen and eight animals in the two experiments using a randomized complete block design. Data was analyzed using the REML procedure for repeated measures (Genstat 7.1 2003) to examine the components of the variance of fecal marker concentrations, their ratio and estimates of apparent digestible dry matter (DMI). The main components of variance investigated for consistency were breed, individual animals within breed and sampling day within animal as a fixed effect. Direct modeling of sampling day offers the advantage of a more accurate removal of environmental variation from phenotypic observation.