

Effect of roughage on methane production and excretion of nitrogen and mineral in dry cattle

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Summary

Thirty six balance trials with 32 energy metabolism trials were conducted to clarify the methane production and the excretion of nitrogen and mineral of dry or pregnant cows fed various roughage. Alfalfa silage, timothy hay, orchardgrass silage or corn silage were offered to meet the TDN requirements of the cows. The results obtained were as follows: 1) methane production of cows increased with the increased digestibility of organic matter or NDF, and the amounts of feces decreased with the increased dietary ME, 2) most of nitrogen and K were

excreted into urine of cows and urine production increased with the increased urine excretion of nitrogen or K, but the urine production was mainly affected by urine K excretion, 3) large amounts of Ca, P and Mg were excreted in feces of cows, 4) feeding corn silage decreased the amounts of feces due to the high ME content and feeding alfalfa decreased methane production due to the low NDF, 5) feeding high N and high K alfalfa or high K grass increased urine production.