

Neutral detergent fibre (NDF) content of (a) maize stalks (60.9%), (b) maize cobs (86.7%) and (c) sugarcane tops (63.3%) was significantly higher than that of (d) sugarcane stalks (40.6%). DM digestibility (DMD) from *in vitro* digestible NDF and neutral detergent solubles was higher in (a) and (d) than (b) and (c). *In vivo* DMD was predicted from Van Soest *in vitro* DMD. *In vitro* DMD obtained by the 2-stage technique compared favourably with the Van Soest method, and the 2 techniques were successful under conditions at Kitale for predicting nutritive quality of high fibre roughages.