Nutritive value of grasses found in Kenyan pastures (Pennisetum clandestinum, P. purpureum, Chloris gayana, C. dactylon, Setaria sphacelata and Themeda triandra) is compared with that of temperate grasses. The low net energy content of tropical grasses is due to their low digestibility and high levels of crude fibre. Relating the nutrient supply from Kenyan grasses at various stages of regrowth to the requirements of dairy and beef cattle, showed an almost general deficiency of energy, the only exception being young P. clandestinum for beef cattle; protein supply varies widely, being highly excessive in the best and more seriously deficient than energy in poor pasture. Practical consequences of the nutrient deficiences are pointed out and the need for adequate supplementation is stressed.