

To what extent different sources of feed cover the mineral requirements of lactating cows in the absence of mineral supplementation was studied. Lactating Friesians, Ayrshires and their crosses with zebu were used in 90-day trials. Feeding systems consisted of napier (*Pennisetum purpureum*) grass and dairy meal for zero-grazed cows; concentrates, various fodder crops and pasture for cows under semi-zero grazing; and concentrates and mixed pasture species for cows under grazing. A mineral supplement was provided for all cows. Chemical composition of concentrates was similar among the feeding systems, except that phosphorus and magnesium were lower with dairy meal and zero-grazing. However, dairy meal was more degradable than the concentrates given with semi-zero grazing. Average daily milk yield was 11.6, 11.7 and 10.1 kg, for the 3 systems, respectively. Average daily intake was DM 15.1, 10.9 and 11.7 kg, calcium 65.2, 43.8 and 33.1 g, P 50.9, 24.5 and 26.2, Mg 46.4, 22.3 and 24.9, and sodium 23.3, 25.4 and 13.6 g. In all systems, Mg intake was above requirement; for zero-grazed cows Ca intake was low; and that of P and Na was adequate. For semi-zero grazed cows, Ca and P intakes were inadequate; Na was just enough. For the grazing system, Ca and P intakes were below requirements; Na intake was about adequate.