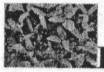
2.2.1  **Keikanelwe, Ntone. (1995). Determination of nitrogen fertilizer requirements in bambarra groundnuts ((*Vigna subterranea* (L.) Verdc.). (Supervisors: Dr. D. M. N. Mbewe and Dr. B. H. Chishala).**

This study was carried out during the 1993/94 cropping season at the University of Zambia Liempe farm and at Lusitu Sub-Research Station in Siavonga which are situated in Agro-ecological Regions II and I (medium and low rainfall), respectively. The objective was to determine the nitrogen fertilizer requirement for bambarra groundnut using accessions of different yielding potential. A split plot design was used, with six accessions (ZAVs3, ZAVs7, ZAVs120, ZAVs6, ZAVs5 and ZAVs8) and five nitrogen levels (1, 15, 30, 45 and 60 kg N/ha) as main and sub-plots, respectively. The accessions were chosen on the basis of yielding potential, i.e., low (ZAVs6 and ZAVs8), medium (ZAVs7 and ZAVs120) and high (ZAVs3 and ZAVs5) as judged by results of a study carried out during the 1992/93 season. The yield parameters measured were: days to 50% flowering, days to maturity, number of leaves per plant, number of stems per plant, number of branches per plant, number of nodes per plant, number of pods per plant, plant spread, plant height, 100 seed weight and grain yield. However, due to severe moisture deficit, yield was measured at Liempe farm only. The total nitrogen content of leaves at pod formation and in the soil after harvesting were also measured. The results indicated that at both locations, nitrogen fertilizer did not have any effect and all yield attributes measured except plant spread and number of pods per plant. However, accessions responded differently to N fertilizer, but this was true for ZAVs7 only. Highest yields were obtained with 15kg N/ha (321 kg/ha) grain, while the lowest was obtained with 30 kg N/ha (65.70 kg/ha) while other treatments had similar yields. Yield was positively correlated with number of leaves per plant, plant height and number of pods per plant. The nitrogen fertilizer levels did not have any significant effect on plant N content as well as on N content of the soil after harvesting. Location had an effect on some yield attributes, i.e., plants at Liempe farm were taller and wider with a higher number of stems than those at Lusitu. Plants at Lusitu had 3.66% N content which was higher than Liempe farm's 3.13% N. The study was seriously affected by moisture and temperature stress. The average yield at Liempe farm was 183 kg/ha.