

Many farmers in Kenya's semi arid lands cannot afford to purchase inorganic fertilisers to improve their crop yields. They thus rely on traditional agronomic practices such as addition of crop residues, animal manures or intercrops of cereals and legumes. This study investigated soil parameters and their influence on yield. It was carried out at the University of Nairobi's Dryland, Research and Utilisation Station located at Kibwezi. Soil parameters measured included soil organic carbon, total soil nitrogen, available phosphorus, soil moisture and soil texture and nitrogen mineralization rates. There was significant correlation ($p < 0.05$) in the growing seasons, between soil moisture and soil organic carbon ($r = 0.66, 0.81$ and 0.65 for seasons 1, 2 and 3 respectively) as well as total soil nitrogen ($r = 0.73, 0.79$ and 0.70 for seasons 1, 2 and 3 respectively) and available phosphorus ($r = 0.55$ for season 1). Where rainfall was low, maize yield correlated negatively ($p < 0.05$) with percent clay content ($r = -0.4$) in season one and showed no significant correlation ($r = 0.21$) in season 3. Where rainfall amounts were high, (as in season 2), the correlation was significant ($r = 0.75$). Nitrogen mineralization rate did not seem to have a direct influence on yield but its effects were modified by soil moisture, soil texture and carbon to nitrogen ratios of the soil. Overall the organic inputs seemed to have minimal impact on yield though goat manure and pigeon pea intercropping had a melioration effect on the soil.