The aim of this paper is to demystify some of the popular myths related to tropical soil fertility management that have gained hold in the development community and are often being promulgated by NGO's and development agencies in the tropics. Negative nutrient balances at farm scale or at larger scales are very often presented as proof that soil fertility is at stake in SSA. However, nutrient balances at plot and farm section scale are not always negative. In areas with large nutrient stocks, short-term nutrient mining is fully acceptable. Fertilizer use continues to face considerable controversy in SSA. In this paper, we demonstrate that fertilizers rarely damage the soil; that fertilizers are being used in SSA, often with favourable value-to-cost ratios; and that fertilizers do not cause eutrophication in SSA. Rock phosphates are abundantly present in SSA but most are poorly soluble. Adding these phosphates to compost heaps does not enhance the short-term availability of their P. Although organic inputs are essential soil amendments besides fertilizer, organic inputs alone cannot sustain crop production due to limitations in their quality and availability. Organic resources can also potentially stimulate harmful pests and diseases. Legumes are often advocated as important sources of organic matter but not all legumes fix nitrogen, require inoculation, or are a source of free nitrogen, as even green manures require land and labour. Certain grain legumes with high N harvest indices do not improve soil fertility, but remove net amounts of N from the soil. These myths need correction if we are to harness the role of science in the overall goal of assisting farmers to address the acute problems of poor soil fertility for smallholder farmers in SSA.