# Phosphorus Recapitalization Strategies Using Phosphate Rocks in Western Kenya. (A06-smithson064628-Poster)

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### Abstract:

Phosphorus deficiency is widespread in East Africa, and local phosphate rocks (PRs) may be an affordable alternative to expensive imported fertilizers. Minjingu phosphate rock (MPR) is a sedimentary/biogenic PR deposit from northern Tanzania, which contains 13% total P and fairly high (3%) neutral ammonium citrate solubility. We tested MPR over 5 years at one site in western Kenya, with the following treatments, all with 60 kg N and 60 kg K ha-1 yr-1, and P as MPR or TSP, added one time at 250 kg P ha-1, or annually at 50 kg P ha-1. Yields were significantly (p < 0.001) increased by P addition from either MPR or TSP. Five-year cumulative yields were not significantly different between TSP and MPR, or between one-time and annual P addition. Relative yields for the one-time application dropped over the study period, and there was no increased residual effect of MPR over TSP. At current prices and the near 100% agronomic effectiveness in this study, MPR is economically attractive in western Kenya. Average effectiveness in other multi-locational trials is lower, however (average 70 to 80%), and at this range of effectiveness MPR shows little economic advantage over TSP.

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