

fertilizer produced yields ranging from 60 to 435 kg/ha until 1984, with no yields in the subsequent years.

Potash additions to the long-term P treatments increased yields by an average of 189 kg/ha. Although yield response was not large, statistical analysis of the yield trend shows that with potash additions, the slope of the yield curve was positive (+31.4) compared to a negative slope (-19.4) when no potash was applied. The addition of potash resulted in progressively higher yields.

Similarly, M only for corn did not supply sufficient P, resulting in low and declining yields. The addition of P to the manure increased yields by 2,505 kg/ha and approximately doubled the grain yield.

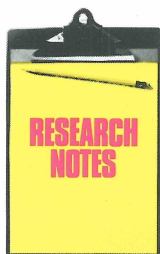


CORN in both plots shown here had P applied. The difference is that the plot at right received K while the one on the left received none.

This long-term experiment has shown that soil fertility and the productive capacity of red, acid soils can be improved by a balanced fertilization program using P and K fertilizers with farm manures. ■

Central America

Regional Corn Grain Yield Response to Applied Phosphorus in Central America



YIELD RESPONSE to phosphorus (P) source, rate and method of application was measured at 33 Central America locations and on three soil orders (Andisols, Inceptisols and Ultisols). Phosphate rock (PR) was applied broadcast preplant with-

out incorporation at rates of 13 and 26 kg/ha. Triple superphosphate (TSP) was band-applied at planting at rates of 13 and 26 kg/ha and broadcast preplant at 26 kg/ha.

The previous three treatments were compared to plots where no P was applied.

Averaged over locations, corn grain yield responses to TSP were 380 and 740 kg/ha at application rates of 13 and 26 kg P/ha, respectively. Responses to broadcast PR were 210 and 160 kg/ha at the same rates.

Researchers concluded that the consistent response to P shows that soil P is a yield-limiting factor across a wide range of environments in Central America. The probability of an economic response to applied P is high. ■

Source: William R. Raun and Hector J. Barreto. 1995. *Agronomy Journal* 87:208-213.