ABSTRACT

Phosphorus fractionation of bauxite soils treated with 0, 300, 600 and 1200 ppm P showed that on both soils added P was fixed only as saloid-P, Al-P and Fe-P. The P content of the saloid, aluminium and calcium fractions decreased over an eight week period while that of the iron fraction increased.

On Chudleigh Clay Loam, at rates of 300 ppm, 600 ppm and 1200 ppm added P, approximately 50 percent of the added P was extracted by both Olsen's and Truog's reagents. On St. Ann Clay Loam percent added P extracted by each of these reagents increased with rate of P addition, but was less at all levels and times of sampling than corresponding values for Chudleigh Clay Loam. 'Available' P on both soils correlated well only with saloid-P and Al-P.

The quantity, and rate of P release, determined by anion exchange, was greater on Chudleigh Clay Loam than on St. Ann Clay Loam. St. Ann Clay Loam retained much more of the added P than Chudleigh Clay Loam.

P^{32} studies with maize did not reveal which fractions were the source of P taken up by the plant, but supported the observation that Chudleigh Clay Loam contained considerably more 'available' P than St. Ann Clay Loam. Subsequent pot experiments showed that maize did not respond to added P on Chudleigh Clay Loam even at the rate of 1200 ppm, while on St. Ann Clay Loam there was no further response after the 300 ppm rate.