

Phosphorus fertilizer use in pineapple cultivation with in situ residues burning on organic soils

ABSTRACT

In Malaysia, pineapples are grown on peat soils, but most phosphorus (P) fertilizer recommendations are made without due quantification of P uptake; the distribution of P in roots, stem, leaves, peduncle, fruit, and crown; or loss through leaching even though P retention in peat soils is low. This study was conducted to determine applied P-use efficiency under a conventionally recommended fertilization regime in pineapple cultivation with in situ residues burning before replanting. Results showed that most of the P uptake in pineapple can be found in the fruit, stem, leaves, and crown, but the general trend of P distribution was in the order of fruits > leaves > stem > crown > peduncle > roots. Phosphorus recovery in pineapple cultivation was about 40%, and this low recovery was attributed to leaching. Hence, fertilizer recommendations need to take into consideration P loss through leaching. This will help to increase P-use efficiency because it is not possible to build up P content of peat soils. As a result, the need to assess the possibility of side-dress applications of phosphatic fertilizers on peat soil is necessary. Copyright © Taylor & Francis Group, LLC.

Keyword: Phosphorus fertilizer; Phosphorus leaching; Pineapple; Tropical peat