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Title: Phosphorus adsorption capacity and availability of added phosphorus in soils from aquaculture areas in Thailand

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Abstract: A series of 20 soil samples was collected from aquaculture areas in 14 provinces of Thailand. Samples represented 10 soil suborders and exhibited wide variation in physical and chemical properties. Soil samples were treated with 0, 25, 50, 100, and 200 ppm phosphorus and incubated under water-saturated conditions for 1 mo. Amounts of added phosphorus recoverable by water extraction decreased markedly as phosphorus adsorption capacity (PAC) of samples increased ($r = 0.88$ to 0.96, $P < 0.01$). This suggests that relative abilities of bottom soils to adsorb and release phosphorus added to ponds in fertilizers or feeds can be assessed from PAC data. Because of the importance of phosphorus adsorption by soil in regulating phosphorus availability to phytoplankton in ponds, the PAC appears to be a more useful technique than traditional phosphorus extraction methods as an index of the phosphorus status of aquaculture ponds. The PAC was highly correlated with clay content of soils ($r = 0.957$; $P < 0.01$), and a knowledge of clay content will permit a rough assessment of phosphorus status.

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