Mahithon Putiso 2009: Benchmark Soils for Agricultural Development in Southeast Coast, Thailand. Master of Science (Soil Science), Major Field: Soil Science, Department of Soil Science. Thesis Advisor: Associate Professor Anchalee Suddhiprakarn, Ph.D. 123 pages.

A study was carried out to establish Benchmark soils in Southeast Coast and their properties as references for future studies and agricultural development activities. Five soils established by the Land Development Department including Khlong Chak series (Kc), Huai Pong series (Hp), Sattahip series (Sh), Mab Bon series (Mb) and Pang-nga series (Pga) were selected. Field analysis on soil environment and morphology and laboratory analysis of soil samples followed standard procedures and methods used in Thailand.

The study revealed that the terrain where soils occupy are flat to nearly flat and gently undulating. The soils are deep, well drained with medium permeability and run off. They have very high soil profile development with clear and thick argillic horizon, angular and sub-angular blocky structure and with presence of skeletons in some areas. Soil chemical analysis shows low fertility in their root zone, low pH values (pH 4.0-5.5), very low to moderate organic matter content (0.82-19.76 g $kg^{-1}$) and the organic matter in surface soils is higher than in subsoils. The soils have very low nitrogen (0.02-0.52 g $kg^{-1}$) and their very low to low available phosphorus (1.59-5.9 mg $kg^{-1}$) and decreases with depth. They have very low to low available potassium (7.0-41.8 mg $kg^{-1}$). They have low cation exchange capacity and percentage of base saturation. Their major mineral in clay fraction is kaolinite with some vermiculite, quartz and illite in a deceasing order respectively whereas quartz dominates their silt fractions.

All of these benchmark soils of the Southeast Coast are Kandiudults. Their limitation is serious on chemistry and fertility and their limitation on physical property is moderate. The assessment results and information of these soils can be used as bases for consideration on soil and water conservation, crop suitability, crop nutrient management and monitoring the change of soil properties, land evaluation, landuse planning, soil erosion assessment and crop modeling.

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