TAXONOMY AND BASIC MANAGEMENT OF INCEPTISOLS FOR RICE PRODUCTION IN WESTERN CENTRAL PLAIN, THAILAND

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ABSTRACT

Lowland Inceptisols which are grouped as acid sulfate soils have mainly been under rice cultivation for centuries in Thailand. On the western fringe of Central Plain these soils occupy extensive areas on old brackish deposits of the former tidal flat. Cumulization of these soils due to subsequent impact of riverine sediments is clearly evident in many areas. This has reduced the adversary condition for cropping on their surface layer appreciably and hence they have been generally more productive than those in the main Central Plain Region. Some of these soils have been affected by riverine alluvium draining onto the area from western limestone region and gypsum can be observed extensively in their profiles. Lower categorical classification of these soils, however, ranges from Sulfic Tropaquepts to Typic Tropaquipts mainly with illitic, mixed or montmorillonitic mineralogical families and fine to very fine particle size classes.

Basic management of rice cultivation on most of these soils have been slowly evolved from traditional no fertilizer application farm animal pulled plowing practices to low input farm fertilization with simple light farm tractor plowing. At present, plowing twice before planting and low rate basal application of fertilizer at time of planting are the most common practices on these soils. Two types of planting are common. On the relatively high areas transplanting is practiced whereas broadcasting with burning of the left over straw is common in the lower areas. Chemical compound fertilizer of nitrogen and phosphorus without potassium is commonly used on these soils. Organic fertilizer has become more popular for farm use recently but liming is not widely practiced. Acid tolerant species of rice are generally used but particularly for second rice crop in irrigated areas and integrated pests and disease controls are widely accepted. With these management practices rice yield per unit area have been collectively ranging from 4.5 ton per hectare for Sulfic Tropaquepts to 5.6 ton per hectare for Typic Tropaquepts. These yields are

economically acceptable. Based on the present trends of fertilizer availability and price, appropriate farm machineries, farm labour availability and marketing price of rice basic management practices for rice production on these soils are not likely to change drastically in at least a decade.