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SUWAT BOONYUEN : SOME EFFECTS OF BLACK TIGER SHRIMP FARMING ON SOIL PROPERTIES AND RICE YIELD : CASE STUDY IN SUPANBURI PROVINCE. THESIS ADVISORS : CHALIE NAVANUGRAHA, Ph.D., PONGPIT PIYAPONG, M.Sc., SURAPOL JATUPON, M.Sc., 132 p., ISBN 974-663-816-5

This research studied the effect of black tiger shrimp farming on the chemical properties of soil , on rice growing , and on rice yield and component yield of 2 varieties of rice , namely : Supanburi 1 and Hom Supanburi. Properties of Saraburi soil series from abandoned ponds (shrimp farming soil) and soil unaffected by black tiger shrimp farming (natural soil) were compared. Soil samples were collected at depth 0-30 centimeters. Samples were collected from natural soils , for rice farming and black tiger shrimp farming soil from shrimp ponds which had been cultured for 1, 2 and 3 years , with samples collected at 3 ponds of each age interval.

The results of this study indicate that some chemical properties of shrimp farming soils had been changed significantly ($P < 0.05$). In particular , electrical conductivity , sodium adsorption ratio and exchangeable sodium percentage , sodium , calcium and magnesium content were increased the longer the shrimp pond was used. The electrical conductivity showed a high value (more than 2 ds/m) after 1 year of shrimp farming. The exchangeable sodium percentage showed a high value (more than 15) after 1 year of shrimp farming. Sodium adsorption ratio , sodium , calcium and magnesium levels were increased in all three shrimp farming period intervals. Sulfate level increased more than in natural soil in all three period intervals. Phosphorus level decreased with longer periods of black tiger shrimp farming. The changes of rice yield , growth , and component yield indicated that these were significantly higher in natural soil than in shrimp farming soil at ($p < 0.05$). The changes of chemical properties , rice yield , growth and component yield were affected from salinity of black tiger shrimp farming soil and , in turn , affected rice growing and rice yield of Supanburi 1 variety more than Hom Supanburi variety.