Thesis Title The Possibility Study on Utilization of Drained Water from Giant Freshwater Prawn' Ponds in Rice Production.

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ABSTRACT

The study was carried out at the Samchook Irrigation Project, Suphanburi Province from March to December, 1990 with a view to observe the utilization of drained water from Giant Fresh Water Prawns' pond on the yield components and grain yield of rice. Furthermore, this study was an attempt to determine the water quality of drained water from the pond as compared with the irrigation water standard.

Giant Fresh Water Prawns (Macrobrachium rosenbergii) were reared in the pond on 5th March 1990 at the age of 15 days in fresh water life cycle at the stocking density of 100,000 prawns/rai. The RD23 rice variety were sowed on 3rd August at the 5th month of prawns' age, transplanted at 28 days interval on 28th August and harvested on 3rd december 1990. The results showed that drained water from the pond has effected only on the height of rice plant at the maxi-

mum tillering stage at statistic value f.05, c.v. 4.36%, LSD.05 = 7.530, LSD.01 = 10.818. The rice with the 5th to 8th month drained water from farm pond (tB) is significant difference in height from tC (the rice with irrigation water in first month of the age of rice and drained water of 6th to 8th month of farm pond) and tD (the rice with irrigation water in the first two months of the age of rice and drained water of 7th to 8th month of farm pond) probability level of 95% and 99% consequently. The rice with irrigation water (tA) is not different in height at the maximum tillering stage from tC and tD.

But there is insignificant difference among the treatments on the height of rice at harvesting period, the tiller number of rice at both tillering and harvesting period, the number of panicles per hill, the percentage of incompleted grain per panicle, the weight of 1000 completed grain, the number of completed grain per panicle, the weight of completed grain yield, and the grain straw ratio.

The drained water quality from the pond from the start till harvesting period of prawns was basically meet the irrigation water standard and could be utilized in rice production. The results of drained water quality analysis were pH 8.2-9, 153-200 micromhos/cm of $Ec*10^6$, 6.40-10.32 ppm. of DO, 10.0-31.0 ppm. of BOD, 0-0.17 ppm of NH_3-N, Org-N of 0-0.86 ppm., 0-0.04 ppm. of NO_2, 0-2.57 ppm. of NO_3, 0-0.44 ppm. of PO_4, 30-120 NTU of turbidity, Ca^{+2} concentration 0.56-0.99 meq/l, Mg^{+2} 0.28-0.49 meq/l, Na^{+} 0.30-0.80 meq/l, K^{+} 0.05-0.09 meq/l,

CO^{-}_{3} 0-0.73 meq/l, HCO^{-}_{3} 0.59-1.40 meq/l, Cl^{-2} 0.11-0.25 meq/l, SO^{-}_{4} 0.04-0.41 meq/l, Total Dissolved Solid 97.42-128 NTU, Sodium Adsorption Ratio 0.37-1.07 meq/l, Soluble Sodium Percentage 17.65-40.61% and Residual Sodium Carbonate was 0-0.51 meq/l.