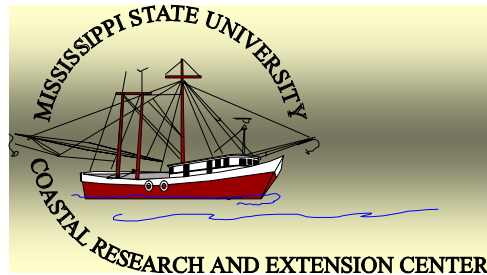


# Effects of Using Horizontal Substrates on Survival and Yield of Freshwater Prawn *Macrobrachium rosenbergii*



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## ABSTRACT

The MSU-Coastal Research and Extension Center and the International Custom Pack, Inc.-Aquaculture Division, conducted a series of experiments using artificial substrates in intensive pond culture of freshwater prawns in quarter-acre ponds at the MSU-Coastal Aquaculture Unit. The goal of these experiments was to determine the effects of using artificial substrates on survival, yield, cost and revenue from prawn pond production.

Six ponds consisting of three control ponds and three treatment ponds were used in the initial experiment. Artificial substrates covering 50% of the bottom area were installed in each of three treatment ponds. These substrates which were made of 1/4-inch mesh plastic netting were constructed in rectangular modules 7 ft wide and 214 ft long. Each module was installed across the pond bottom with 5 ft pvc pipes laid every other 10-ft horizontal distance. One layer of plastic netting was tied to the pvc pipes in pre-drilled holes at the troughs of each 10-ft wave. Monofilament lines were used to raise the crest of each 10-ft wave to 1 ft below the water surface. Each of these modules had an area of 1,500 sq ft or 25% of the pond bottom area. Two of these modules were installed in each of the three treatment ponds.

Each 1/4-acre pond was stocked in July 6, 1998 with 9,000 45-day old postlarvae weighing 0.1 g each and harvested after 120 culture days. Sinking catfish feed with 32% protein were broadcasted along four sides of each pond two times daily. Dissolved oxygen and temperature were monitored twice each day while salinity, pH, total ammonia, nitrogen and nitrite were measured on a biweekly basis. Harvest results during the initial experiment showed that ponds with artificial substrates had higher average survival rate (70 vs. 55%) and average yield (1388 vs. 1164 lb/acre) than those without artificial substrates. Further verification of the results of the initial experiment is currently being conducted at the aquaculture facility. Nine ponds were stocked in June 15, 1999 consisting of three control ponds, three ponds with 50% added substrates and three ponds with 75% added substrates.

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## Horizontal artificial substrates



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## 45-day old juveniles



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## Freshwater prawn harvest

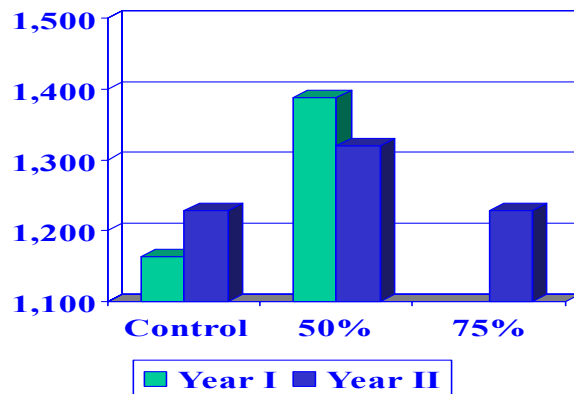


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## Average yield (lb/acre)

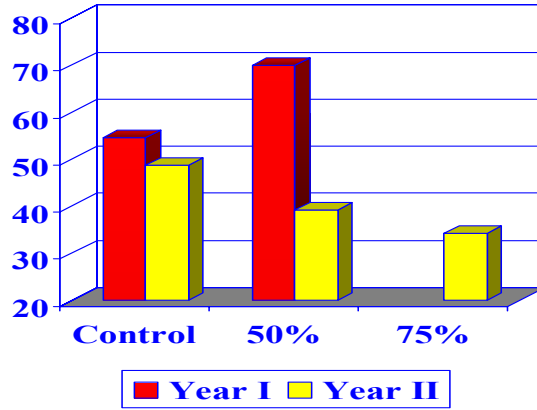


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## Average survival rate (%)

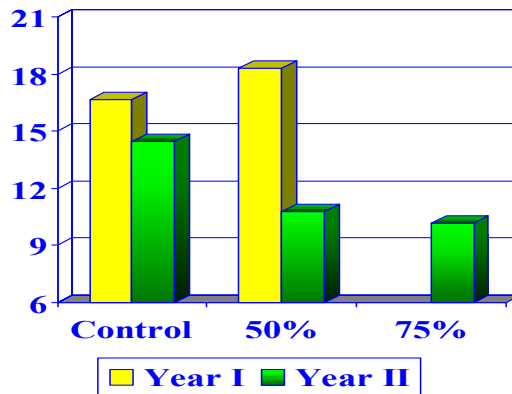


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## Count per pound

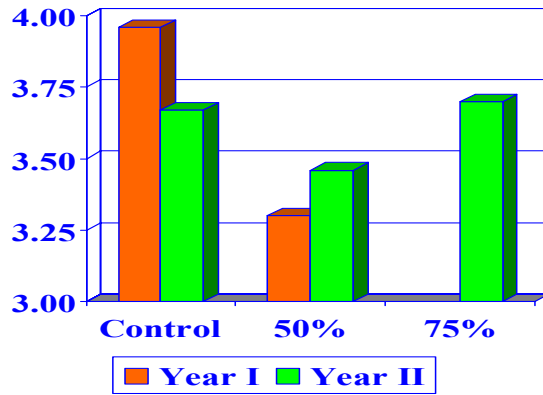


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## Feed conversion ratio

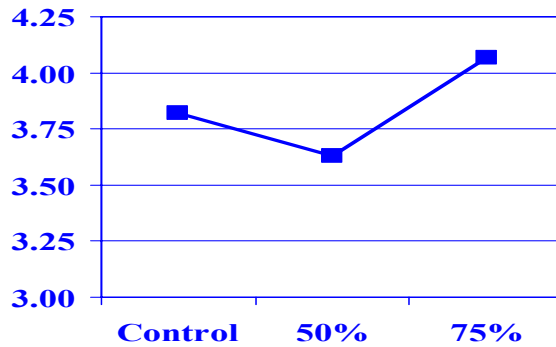


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## Average cost (\$/lb)



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