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AQUACULTURE COLLABORATIVE RESEARCH SUPPORT PROGRAM



## RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

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**Title:** Farm-Level Economic Effects of Viral Diseases on Honduran Shrimp Farms

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**Abstract:** Tara Syndrome Virus (TSV) and White Spot Syndrome Virus (WSSV) have significantly decreased survival rates of farm-raised penaeid shrimp in Honduras and other shrimp-growing regions of the Western Hemisphere. A dataset of individual records of 1,004 shrimp ponds in Honduras was used to develop a linear programming model to evaluate optimal management strategies if viral prevention programs were implemented on shrimp farms. The model selected low and intermediate stocking densities as optimal for most growout cycle alternatives considered, given post-Taura and post-White Spot Syndrome production relationships. Model simulation indicated that the decreased shrimp survival due to viral infections had decreased net farm income by approximately 84% from optimal management plans in the absence of viral diseases. Simulations in which costs of viral disease prevention programs were included resulted in a 47% increase in net farm income above the base scenario. Production activities would need to be re-scheduled and stocking densities adjusted to accommodate disease prevention programs. These results further provide a measure of the value to shrimp farms of new technologies related to either shrimp health or disease-resistant shrimp that increase shrimp survival rates.

This abstract is excerpted from the original paper, which was in *Journal of Applied Aquaculture*, 16(1/2): 1-26.

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