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RESEARCH REPORTS

SUSTAINABLE AQUACULTURE FOR A SECURE FUTURE

Title: Non-parametric estimation of returns to investment in Honduras shrimp research

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Abstract: This paper reports the results of a study to evaluate the economic returns on the investment in shrimp research in Honduras. The goal of this study was to estimate the economic returns to shrimp research investment by the Pond Dynamics/Aquaculture CRSP, a USAID-funded program involved in global pond aquaculture research in Honduras since 1993. The research program was implemented by Auburn University researchers under the auspices of the PD/A CRSP in order to improve shrimp production efficiency. The analytical technique used in this study is a non-parametric approach to estimate the returns to research investment, based on Varian's Weak Axiom of Profit Maximization (WAPM). Shrimp production data from 21 farms in Honduras were collected by survey techniques. Each farm indicated yield, post-larva (PL) stocking rate, and feeding rate during its first production year and 1997 (the survey year). For the combined investments, the Internal Rate of Return (IRR) was 17% (45% with Taura Syndrome Virus (TSV) correction); considering only public-sector investment gave an IRR of 6,532% (13,412% with TSV correction). These results suggest a very effective leveraging of US federal research funds with private-sector capital. Results from this study clearly point toward technical progress in Honduran shrimp cultivation. Non-parametric total productivity indices evaluated from the output technological indices indicated proportionately higher yields in the post-research years. This study also illustrates the importance that commercial shrimp farms place on the Auburn University PD/A CRSP research program, which is evident from the significantly higher private-sector over public-sector investment.

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