World Academy of Science, Engineering and Technology
International Journal of Agricultural and Biosystems Engineering
Vol:10, No:08, 2016

Economic Assessment of the Fish Solar Tent Dryers

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Abstract : In an effort of reducing post-harvest losses and improving the supply of quality fish products in Malawi, the fish solar tent dryers have been designed in the southern part of Lake Malawi for processing small fish species under the project of Cultivate Africa's Future (CultiAF). This study was done to promote the adoption of the fish solar tent dryers by the many small scale fish processors in Malawi through the assessment of the economic viability of these dryers. With the use of the project's baseline survey data, a business model for a constructed 'ready for use' solar tent dryer was developed where investment appraisal techniques were calculated in addition with the sensitivity analysis. The study also conducted a risk analysis through the use of the Monte Carlo simulation technique and a probabilistic net present value was found. The investment appraisal results showed that the net present value was US$8,756.85, the internal rate of return was 62% higher than the 16.32% cost of capital and the payback period was 1.64 years. The sensitivity analysis results showed that only two input variables influenced the fish solar dryer investment's net present value. These are the dried fish selling prices that were correlating positively with the net present value and the fresh fish buying prices that were negatively correlating with the net present value. Risk analysis results showed that the chances that fish processors will make a loss from this type of investment are 17.56%. It was also observed that there exist only a 0.20 probability of experiencing a negative net present value from this type of investment. Lastly, the study found that the net present value of the fish solar tent dryer's investment is still robust in spite of any changes in the levels of investors risk preferences. With these results, it is concluded that the fish solar tent dryers in Malawi are an economically viable investment because they are able to improve the returns in the fish processing activity. As such, fish processors need to adopt them by investing their money to construct and use them.

Keywords : investment appraisal, risk analysis, sensitivity analysis, solar tent drying
Conference Title : ICSAEF 2016 : International Conference on Sustainable Agriculture, Environment and Forestry
Conference Location : Paris, France
Conference Dates : August 22-23, 2016