



AQUACULTURE SUSTAINABILITY CERTIFICATION SYSTEM



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Introduction

The sustainability of aquaculture can be recognized by the market through certification, with credible systems with the potential to meet the demands of the trade and provide a tool to support the activity (FAO, 2011). Furthermore, product labeling can add value and open new markets, facilitating exports (Valenti *et al.*, 2021). The portfolio of indicators developed covers the fundamental principles of sustainability and is well accepted by those interested in the area, serving as a tool for evaluating and monitoring the production of aquatic organisms (Valenti *et al.*, 2018).

Objective

The aim of the study was to develop a sustainability certification tool for aquaculture farms.

Methods

We have selected a set of quantitative indicators suitable for evaluating all the major aquaculture systems globally used. These indicators were arranged to measure important aspects of the three sustainability dimensions: economic, social, and environmental, according to Agenda 2030. Economic indicators demonstrate whether capital is efficiently used and if the activity is profitable and can generate enough wealth or profit to keep the producer in the business. Social indicators assess whether the project generates benefits for local communities, such as jobs, food security, income equity, and social inclusion. Environmental sustainability measured the use of natural resources, the efficiency in using resources, and the release of pollutants into the environment. All selected indicators were previously tested in almost 50 aquafarms of fish, crustaceans, mollusks and algae.

Results

Farms can receive Bronze, Silver, or Gold seals according to the level of sustainability attained. For Bronze grade, the farm must reach levels considered sustainable in 60% of the indicators, being 13 environmental, 12 socials and 8 economic. For Silver grade, it must reach 75% of the indicators for each dimension, at least 16 environmental, 15 social, and 10 economic. To obtain a Gold grade, farms should reach a sustainable level in 90% of all indicators, including at least 20 environmental, 18 social and 12 economic indicators (Table 1).

Table 1. Bronze, Silver, or Gold seals according to quantify of indicators obtained in the farm.

Seals	Indicators		
	Environmentals	Socials	Economics
Bronze	Use of Space	Development of Local Economy	Ratio between Net Income and Initial Investment
Bronze	Dependence on Water	Use of Local Workers	Payback Period
Bronze	Use of Energy	Remuneration of Work per Unit of Production	Benefit-Cost Ratio
Bronze	Use of Phosphorus	Investment to Create Direct Employment	Net Profit
Bronze	Use of Nitrogen	Permanence in the Activity	Diversity of Products
Bronze	Efficiency in the Use of Energy	Local Consumption of Production	Diversity of Markets
Bronze	Efficiency in the Use of Phosphorus	Pay Equality	Annual Income
Bronze	Efficiency in the Use of Nitrogen	Income Distribution	Permanence of the Farmer in the Activity
Bronze	Production Actually Used	Participation in Outside Community Activities	Internal Rate of Return
Bronze	Potential of Eutrophication (P)	Gender Inclusion	Net Present Value
Bronze	Potential of Eutrophication (N)	Racial Inclusion	Risk Rate
Bronze	Potential of Siltation	Age Inclusion	Invested Capital Generated in the Activity
Bronze	Accumulation of Particulate Material	Safety at Workplace	
Silver	General Chemical Pollution	Access to Health-Insurance Programs	
Silver	Accumulation of Phosphorus	Schooling	
Silver	Accumulation of Organic Matter	Proportional Cost of Work	
Gold	Potential of Acidification	Required Work per Unit of Occupied Area	
Gold	Potential of Global Warming	Required Work per Unity of Production	
Gold	Pollution by Hormones		
Gold	Risk of Farmed Species		

Conclusion

Sustainability certification has been the subject of study in different areas of knowledge, given its contribution to improving the relationship between producing farms and society. Thus, the certification of an aquaculture enterprise may increase competitiveness and access to new markets, adding value to its products and positively affecting the production chain.

FAO. (2011). Technical Guidelines on Aquaculture Certification. Food and Agriculture Organization of the United Nations. Rome.

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