

Prospects and challenges for development of organic fish farming in Italy

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Introduction

In the recent years an increasing demand for quality has been registered on the agro-food market (Grunert, 2005; Yu and Abler, 2009). This trend reveals interesting opportunities for fish in terms of differentiation, that could be used to add value to the product. Regulation CE No. 834/2007 and 710/2009 and the latest European Communication on Building a sustainable future for aquaculture (COM 511/2002, COM 162/2009), also constitute relevant development prospects of productions, one of those is the organic one, characterized by a low environmental impact and an integrated approach to land resource management, both in marine and inland waters. Organic fish would represent a product for a new market segment, both limiting the negative effects of price competition exerted by the imported product and satisfying the need for more food quality and safety. Consumers, in fact, are willing to “experiment” organic fish, although quality perception is tied more to fish wilderness and lack of confidence in controls and farmers behaviors with respect to compliance with production regulation (Gaviglio and Pirani 2009). On the supply side, organic fish farming is now a niche market that affects a small part of the global aquaculture production; it is estimated that world organic production in 2009 was around 53,500 tons (0.1% of total aquaculture production), accounting totally for 230 million € (IFOAM, 2010). The number of certified production units (including microalgae)

Abstract

The Authors reflect upon development potential of organic aquaculture in Italy in terms of economic, social and environmental sustainability through the application of a SWOT-derived methodology. Current market situation of organic farmed fish is characterized by a lower demand and product differentiation than conventional product, furthermore legislation is not completely defined yet and supply volumes does not insure to cover all potential market request. Results of qualitative analysis, involving different farms may represent the basis for institutional intervention aimed at stimulate new business strategies for the whole aquaculture sector.

Keywords: organic aquaculture, sustainability, product differentiation, SWOT analysis.

amounted in 2009 to 240 in 29 different countries. Most units are located in Europe for a total production of 14,000 tons, where the main products are Atlantic salmon, sea bass and sea bream, and Salmonids (rainbow trout, brown trout, brook trout) and carp (IFOAM, 2010). In Italy the supply of certified organic fish is limited

and refers to a ten organic farms. Only some pilot project (Uniprom, 2001, Api, 2007, Veneto Agricoltura, 2011) were carried out in order to define or verify standards for organic fish farming for different species, evaluate production costs (Defrancesco, 2003) and estimate the potential demand for certified organic fish (Defrancesco, 2003, Disegna et al., 2009, Mauracher and Tempesta, 2011). This paper is aimed at assessing the future potentialities of the Italian organic aquaculture through the application of a SWOT-derived methodology. The survey interested different fish farming units (in terms of technique and localization) which were investigated from a technical-economic and environmental point of view.

Material and Methods

Standing the incompleteness and poorly accurateness of available data and information, the Authors opted for a qualitative approach in this paper and, furthermore, the adoption of SWOT analysis was driven by the need of conjugate technical-environmental parameters with law-economical aspects in the same evaluation, in order to obtain an “aggregate” final assessment containing all these different elements. The qualitative analysis used, is focused on the developing possibilities and potentialities for organic aquaculture sector in Italy, in terms of sustainability (from an economic, social and environmental points of view) and eco-friendliness. SWOT analysis helps to identify all the key factors affecting achievement of an objective within specific space and time constraints; considered factors were inserted into a matrix template, divided into four sections: Strengths – Weaknesses – Opportunities – Threats. S and W

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are factors arising from the internal conditions of the business while O and T originate from the external environment. Matching the environmental T and O with the organization's W and S permit to identify a strategic link between the internal and external situation which could represent a fundamental starting point for the strategic management (of a firm/organization/sector) (Lu, 2010). SWOT analysis originated from efforts at Harvard Business School to analyse case studies (Panagiotou, 2003) in order to investigate organisational strategies in relation to their environment. During the '60s and '70s this method was developed as framework allowing the matching between firm's resources and its environment and for its usefulness in order to evaluate the companies' performances (A. Humphrey at Stanford University -<http://www.tamplc.com/>-, Learned et al. at Harvard University, 1965). Then, during the '80s, Weihrich make this method more popular and, according to the studies in the field of management and corporate planning, while Porter suggested the use of SWOT analysis for the strategic planning and strategic management in modern organizations (Lu, 2010). Since the '80s SWOT has been adopted in order to analyse alternative choices of public intervention and it is included in the evaluation methods of EU programmes (Storti, 2003). The Authors are aware that this methodology could appear more a poorly structured methodology than a rigorous method (Bezzi, 2005), in this survey the classical SWOT analysis is joined with a numerical translation of the collected opinions. This choice was oriented by the wishes to take advantage of SWOT analysis flexibility and adaptability in a phenomenon evaluation but in the meantime weighting the judgements, in order to obtain a number as final assessment, could increase the procedural accuracy. Channelling the qualitative opinions into numerical values (merit scale ranging from -5, high W/T to +5, high O/S; 0 meant there is no S, W, T or O) should allow a clearer and immediate comparison through all the items considered having an impact on the organic aquaculture development. The matrix was constructed with an order of 43 rows and 8 columns: parameters affecting organic aquaculture (specifically the organic farming or the environmentally friendly farming of European sea bass and gilt-head bream) were inserted along the rows; the interviewed experts' judgements were fitted in the columns. A column at the end of the matrix registered the final average value for each parameter considered in the rows (as arithmetical mean of all the collected judgements) and a partial mean has been calculated for each experts' category. Parameters in the rows are classified according to the three typical level of sustainability (economic, environmental and social) for the sector and for two aspects of the external context; they belong to the eight macro-categories listed below:

- *Organization and Market [Economic issues]: 9 elements like inter-professional relations and concurrency of foreign products;*

- *Demand [Economic Issues]: 5 elements like status of the organic fish demand;*
- *Accounting and Profitability (of firms) [Economic issues]: 6 elements like profitability and EU funds availability;*
- *Human resources [Social issues]: 6 elements like employment increasing;*
- *Management [Social issues]: 1 elements, the managerial skills;*
- *Environment [Environmental issues]: 7 elements (biodiversity decreasing, safeguard of marginal natural areas, ...);*
- *Institutional framework [External context]: 4 elements like the availability of public funds for the organic chain and the political climate towards the organic products;*
- *Global context [External context]: 5 elements (Innovation and technological development, the evolution of regulations (i.e. new Reg. 710/2009), new CFP,...).*

The considered parameters listed in the rows derived partly from bibliography (Zanoli et al. 2007; Castellini et al., 2007) after an appropriate fitting to the aquacultural sector and partly from the EU documents (COM(2002) 511 final. A strategy for the sustainable development of European Aquaculture). Averaged out judgements for each macro-category allowed drawing a picture about the organic aquaculture performances and capabilities under the different points of view considered in the survey. At the same time, the results could represent a base for institutional intervention in the sector or in order to develop entrepreneurial actions. The rating evaluation may be appropriately differentiated considering the economic, environmental and social elements; suggestions deriving from the external factors complete the strategy's framework. The interviewed experts belong to well-defined categories, chosen for their involvement in the activities: chain practitioners (farmers and traders), local institutions, producers' organizations (PP.OO.) and researchers and/or scholars of the sector. The Authors are aware that the use of a panel of experts for a qualitative analysis surely presents the criticism linked to the subjectivity of their judgments but, at the same time, it offers three interesting advantages (Gambelli, 2007): opinions' heterogeneity, the possibility to involve the direct concerned people and the opportunity to fill some potential informative gaps in terms of completeness (lack of data) and time series (incomplete historical data series or outworn information). The number of experts (nine, from different Italian Regions) was not homogeneous from one macro-category to another but considering the average value of the judgments, it could be asserted that the consistency did not affect the extent of the value.

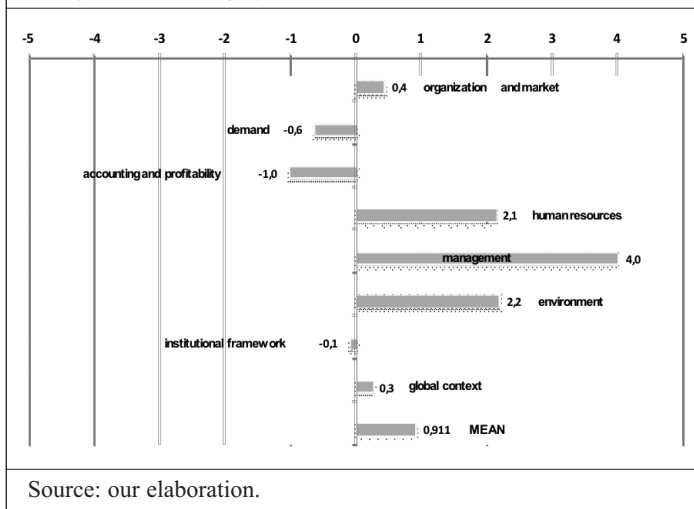
Results

The matrix, submitted to the respondents from each macro-category was analysed and the scores assigned, collected and processed for comparison against a common scale of value (Fig. 1). First of all it is to be stressed that aquaculture still resulted an experimental activity. Organic

aquaculture regulation had been completed only in 2009, even though for many years EU has been urging on an environmental friendly aquaculture management. So a widespread uncertainty was observed both according to organic aquaculture supply chain development and with regard to its regulation effectiveness. At the same time experts expressed a positive opinion on environmental impact, but their evaluations were quite subjective and not yet confirmed by any experimental data. According to the sector analysis and economic sustainability one of the most important strength factor, pointed out by interviewed experts, was pertinent to supply chain organization. Inside this macro-category, supply chain spread and product quality were defined very positive aspects. These strength factors resulted more important if they are considered in comparison to the same aspect in conventional supply chain and estimating a widening of the organic fish market. All interviewed expert categories agreed with defining overseas fish competition most relevant weakness aspect. Foreign products are often cheaper than Italian because of lower production and certification costs, so that their presence on home market reduce national firms' profitability. Promotion was considered another weakness key factor: customer's knowledge about organic fish products is inadequate because of ineffective marketing organization caused by an institutional and professional organizations lack of interest.

places and not yet receiving a premium price by the consumers. Distribution in general resulted a weakness inside the macro-category related to the demand because it resulted unsuitable as for what is related to retail as at wholesale level. Furthermore, the **demand** can't be considered a strength because even if, overall, the fish products demand dynamics are positive, the supply of organic products is limited and its characteristics and distinctiveness are only partly known, unsupported by communication actions, and consequently, not much searched. With regards of economic sustainability a very important element is that the **profitability** for producers seems to differ greatly from a regional point of view. In fact, whereas exists a steady local market for seafood, a new product could be successfully introduced gaining high profitability; more difficulties are recorded where fish consumption is less widespread. However, there is a need for more in-depth research concerning the firms' accountability. Lastly, a point of weakness is still the lack of financing funds available. This is due to the bureaucratic complexity and the current lack of funding specifically dedicated to organic aquaculture at a local level. For what concerns **human resources and management**, professional qualification, managerial and technical assistance, are quite up to the demands of the new sector, also because the needs of organic aquaculture are not different from those of conventional farms thus can take advantage of existing skills. The analysis revealed a weakness both in the level of aggregation and organizational capacity of businesses but this is common also to the conventional producers. Interviewed's expressed scores on **environmental sustainability** reveals positive opinions. In fact, both pollution and the preservation of biodiversity are positively encouraged by organic farming techniques as required in EU Reg 710/09 for the mitigation of the farm's impact on the environment. Regarding the **institutional framework** it emerges the concern of operators towards constraints of current legislation, which involve higher production and marketing costs. Specifically, the great difficulties in selling the product are linked to standard regulations of packaging and presentation and to sales channels with organic certification. At the moment the political situation and lack of public funding are considered a threat by the operators, unlike regional government officials interviewed indicated their willingness to promote appropriate measures to support the sector. According to **global context**, the consumers satisfaction and its willingness to pay a premium price for organic products are not considered elements of competitive advantage. More worrying is the negative opinion with reference to effects of globalization and the current economic situation. The last two variables are particularly worrying because there are on the market qualitative lower products coming from foreign countries and a general tendency to decline in consumer spending. Entrepreneurs and politicians believe that additional benefits can be also derived from an evolution of the legislation, in particular in terms of clarity and easy adoption. For the new Common fisheries Policy, which imposes limits on fishing effort, it may provide positive effects on the competitiveness of farmed fish and,

Figure 1 - Development of organic aquaculture in Italy: SWOT scores for macro-category.



Speaking about **organization and market**, producers considered the local and national market low development as a strength allowing them to choose different selling channels, instead policy makers, judged the almost total selling by the mass channel as a weakness factor. The wholesalers didn't show interest in promoting the organic attribute, lowering the effect of any promotional action by institutions and producers. The mass channel behaviour was due to the difficult and expensive management of organic product needing a particular packaging and separated

in particular, the organic products due to substitute the catch fish.

Discussion and Conclusion

At the present the small amount of organic aquaculture farms in Italy, which are steady settled on organic market, did not allow to get significant statistical information but qualitative analysis results were certainly useful to define a framework of this activity, enhancing its positive or/and negative aspects from several points of view. By answers of the qualitative survey, the Authors reflected about the development potentialities of the organic aquaculture in the current market context. Firstly one of the main remarks that is important to outline concerns the regulation about organic aquaculture which are recent and till now its adoption appears difficult. In 2013 it is listed a revision of the Reg. (EC) 710/2009 in order to improve it and to modify its possible inadequacies. For what concerns the economic aspect, the information indicate some dissimilar situations among varying farming techniques and they exhibit different level of profitability with unsatisfactory results for the businesses located in the North-Centre of Italy (where the fish consumption is not so spread as in the South). This could determine problems if supply and prices will decline, above all in order to pay investments. The current market situation is characterized by a low demand, an inadequately product differentiation from conventional (domestic or foreign) ones, a legislation still in progress, an unstructured and lower offer of organic products which does not allow to consider organic aquaculture as an activity that today can assure adequate profitability for the most part of Italian aquaculture firms. On the opposite it seems to be a useful tool for companies offering conventional product already permanently active on the market, in order to diversify their supply achieving a production line of "organic" fish with short-term changes of the usual production structure. Furthermore a new market perspective may be represented by the public catering as to say hospitals and schools canteens and organic restaurants showing a increasing diffusion. Really the European fishery fund (EFF), by so called Aqua-environmental measures, provided for a specific support for firms choosing organic aquaculture methods within the meaning of Council Regulations (EEC) N° 834/07 and 889/08, but according to all the interviewed experts, until today, any aids was started up in this sense by Italian regions administrations. On the other side interviewed experts pointed out the presence of few small farms, established in direct-to-consumer market channels, or already qualified with IFOAM audit scheme, that posted their fish production to the northern European market. In this case the most important competitive factor resulted the presence of firms in established organic marketing channel and this kind of firms in particular may take advantage of the valorisation of their product according to Council Regulation (EEC) 710/2009. For the sector development a fundamental step of the research is doubtless the consumers' choices analysis in order to identify i.e. the purchase attitudes for this kind of seafood. At the same time an appropriate marketing plan is necessary aimed at communicating the product to the consumers

but also improving the retail involvement and efficiency. All these actions could stimulate the economic viability of the chain in primis for the production firms but more in depth studies are needed.

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