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# Global quality status in Mediterranean aquaculture

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**SUMMARY** – Quality has become a key word for suppliers in the provision of food products to the consumer but can remain an extremely difficult concept to master in terms of application. For many consumers, there are good (high quality) and poor (low quality) species where the initial determination of quality may be based on such criteria as: (i) visual perception; (ii) taste; and (iii) trust (that the supplier is providing a good product). The translation of these different perceptions of quality into the aquaculture chain remains an extremely complicated and ever-changing process. While some Mediterranean countries belong to the European Union and have common legislation that affects "quality", others have significant production for local and non-EU Mediterranean markets and, therefore, the overall concepts applied to "quality" can change. The establishment of procedures and standards is essential for the successful incorporation of quality into any process. Some aquaculture companies (usually those who are vertically integrated and market the final product) are submitting for ISO (International Standards Organisation) approval. These standards also involve the establishment of managerial and service quality, items that are increasingly important within the commercial world.

**Key words:** Quality, Mediterranean aquaculture.

**RESUME** – "Statut de qualité globale en aquaculture méditerranéenne". La qualité est devenue un mot-clé pour les fournisseurs de produits alimentaires destinés aux consommateurs mais elle peut demeurer un concept extrêmement difficile à maîtriser en termes d'application. Pour un grand nombre de consommateurs, il y a des espèces bonnes (de qualité élevée) et des espèces médiocres (de faible qualité) là où la détermination initiale de la qualité peut être basée sur des critères tels que : (i) la perception visuelle ; (ii) le goût ; et (iii) la confiance (le fournisseur apporte un bon produit). La traduction de ces différentes perceptions de la qualité dans la chaîne de l'aquaculture reste un processus extrêmement compliqué et toujours changeant. Tandis que certains pays méditerranéens appartiennent à l'Union Européenne et ont une législation commune en ce qui concerne la "qualité", d'autres pays ont une production significative pour les marchés locaux et ceux de la Méditerranée hors Union Européenne et, donc, les concepts d'ensemble appliqués à la "qualité" peuvent changer. L'établissement de procédures et de normes est essentiel pour une incorporation efficace de la qualité dans tout processus. Certaines sociétés aquacoles (généralement celles qui sont intégrées verticalement et commercialisent le produit final) soumettent des demandes pour approbation ISO (International Standards Organisation). Ces normes impliquent également l'instauration de la qualité au niveau de l'entreprise et du service, éléments qui sont de plus en plus importants dans le monde commercial.

**Mots-clés :** Qualité, aquaculture méditerranéenne.

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## Understanding quality

Quality has become a key word for suppliers in the provision of food products to the consumer but can remain an extremely difficult concept to master in terms of application. For aquaculture, this is primarily because of the different aspects that the word "quality" can apply to.

For fish and shellfish, most people interpret "quality" as a reference to the condition of the final product that is bought by the consumer.

For many consumers, there are good (high quality) and poor (low quality) species where the initial determination of quality may be based on such criteria as: (i) visual perception; (ii) taste; and (iii) presence of bones.

The consumer's perception of quality will always be a very individual matter since it combines, at the moment of purchase, the realisation of: (i) knowledge (of what the product has been in the past); (ii) anticipation (that what has been bought is as good or better); and (iii) trust (that the supplier is providing a good product).

However, to the aquaculturist, "quality" can be applied to broodstock, fry and fingerlings, aquafeeds and other items used in the farming process. To the farm manager, the "quality" of the workforce and his suppliers are important aspects. To the farm's clients, "quality" also has to include service as well as the nature of the product.

The translation of these different perceptions of quality into the aquaculture chain thus remains an extremely complicated and ever-changing process.

The situation in the Mediterranean is complicated by the major structural differences in the countries located in this Region. Not only is there substantial variation in the state of aquaculture development, but also the individual socio-economic and cultural differences compound these distinctions.

In addition, for certain high value products, the target markets are those of the European Union. While some Mediterranean countries belong to the European Union and have common legislation that affects "quality", others have significant production for local and non-EU Mediterranean markets and, therefore, the overall concepts applied to "quality" can change.

However, at this time, the term "quality" has become a topic concerning control of a process and its certification. In presuming that full control can be applied over a process, then "Quality" becomes a measurable standard as opposed to perception.

## **Standards**

The establishment of procedures and standards is essential for the successful incorporation of quality into any process. It is the degree to which such procedures and standards are taken that is now affecting the consumer's and the producers' perceptions of quality.

In the European Union, the legislator's concern for consumer safety has resulted in the application of HACCP procedures as an additional requirement within the existing laws that cover the nature of the installations accredited for food processing. This attempts to provide the combination of approved procedures within a minimum standard of installation in order to generate "quality".

Within the aquaculture sector, additional legislation covers items such as approved veterinary products and maximum residue levels, issues that also have to be included within the concept of "quality".

For consumer approval and commercial advantage, many supermarkets have established their own criteria for suppliers to meet in order to have an "independent" quality image. Such actions can also taken in order to protect the liability of the seller, notably for fresh and chilled products. These measures lead to the approval of specific farms/product sellers to be able to supply to specific supermarket chains and are controlled directly by the supermarket/buyer.

The development of independent Quality Schemes for aquaculture differs slightly from the latter, since they are not restricted to one specific buyer. Such schemes follow defined procedures and aim to provide a consistent product of known characteristics. However, these must be controlled independently if credibility is to be accorded to the scheme. For such schemes to be developed and implemented, a group of members is required.

Some aquaculture companies (usually those who are vertically integrated and market the final product) are submitting for ISO (International Standards Organisation) approval. These standards also involve the establishment of managerial and service quality, items that are increasingly important within the commercial world. The ISO Standards are seen as being the most stringent in terms of international approval.

The latest quality issue to be addressed is that of the Organic or Eco-labelled production process, which while based on a more philosophical approach, has established standards that reflect practical and technical procedures for production.

## Status of quality in aquaculture

Within the European Aquaculture sector, there is thus a wide range of different items that need to be considered for "quality" definitions.

### Hatchery and Broodstock Quality

The first stage in the aquaculture process is the quality of the fry/fingerlings provided to the producer – the quality of these items can only be assured by the hatchery/nursery since there is no other adequate measure available for this purpose. The genetic quality, survival rate and other associate factors are difficult to quantify and guarantee. In this sector, it is more the reputation and conditions of sale of the supplier that are the key to quality assessment by the producer. For the salmonid sector, the disease-free status of certain hatcheries is the most visible guarantee of quality.

### Farm production quality

The second stage, growing the fish to market size, involves in many cases the establishment of self-regulating quality management. Much of this may appear to be self-evident and refers to items such as: (i) using the best feeds for the species and the species size; (ii) regular observations for disease incidence; and (iii) treating fish promptly if disease occurs, only using licensed therapeutic agents.

These are the sort of normal management procedures that come under "in-house" responsibility and which are influenced by legal obligations as well as the desire to operate a "best practice" production cycle.

There are, inevitably, many more items that can be regarded as contributing to "quality" on a farm. Nonetheless, effective self-regulation is the key point to successful quality establishment.

There is growing public and administrative concern for "best practises", quality assurance and the welfare of the farmed animal. Indeed, propositions for how the aquaculture sector should operate are coming thick and fast from many different sources. While many in the production sector see such actions as being intrusive and indeed unfair, the best solution must be producer-led schemes for effective self-regulation since these will demonstrate the commitment to quality by the sector.

While some salmon and trout producers have independent quality schemes (which involve strict membership and adherence criteria), others can access supermarket sales directly through respect for the quality procedures imposed by the retailer in question. It has to be noted that it is generally the processing/conditioning part of the sector that takes the final responsibility for this.

Additional criteria can be added to the simple visual aspects that include:

- (i) Taste (most processing units test and taste samples of every batch of fish that is delivered).
- (ii) Texture – this aspect is increasingly important given the range of cultivation techniques and external influences that can affect the flesh texture, including feeds.

### Traceability and Control

As a final point on the production process, traceability is an increasingly important element of quality perception. This means being able to identify all of the inputs made in the production of a fish (source of fry, whether it was treated with a therapeutants (how much and when, what feeds, etc.). Traceability means excellent control of the production process and associate record keeping.

At the present, it is possible to achieve all of these sub-topics although not without investment and training. In recent years, the larger companies and cooperatives have made such investments, often based on the policy that this would bring better prices and profitability.

The success of this policy has been undermined by severe competition within the marketplace and the dominant position of the supermarkets for retail sales in northern Europe. Indeed, the circumstances are such that if quality cannot be respected, the sale will not be made. It is thus that one could consider that quality is no longer an option but a requisite.

## **Status of quality in Mediterranean aquaculture**

As indicated earlier, there are different sub-sectors within the Mediterranean Region, which are differentiated primarily by the target markets of the producers.

The sales of Mediterranean production of marine fish has been characterised for many years by the performance of the target EU markets, where the Italian market has been the traditional focus for many exporting countries (Greece, Turkey, Malta, etc.). Spain has also been a target market for production, notably from Morocco.

Indeed, the size and scope of the Italian market can be seen as one of the fundamental reasons for investment in aquaculture in many Mediterranean countries over the last 15 years.

The structure of this market, where the fish species is provided boxed and iced as a wholesale product, puts a premium on price as opposed to "quality". This statement does not mean that the product is bad or does not have the consumer-related aspects of quality. It means that the application of the other aspects of quality discussed in this presentation is of lower importance to the first buyer in the chain. This situation can be compared to that which exists for European farms that adhere to officially recognised Quality Schemes, where legally binding guarantees on farming procedures are provided.

It is a situation that also reflects the manner of sale and the number of steps (involving separate financial transactions) that exist between the producer and the consumer. For farms that can sell directly to supermarkets there is only one intermediary between the producer and the consumer. For smaller Mediterranean producers, the product may pass through 3 or 4 transactions before it arrives at the consumer.

For those in the Mediterranean aquaculture sector that target the EU markets, practical circumstances can prohibit direct sales to supermarkets – hence implying a reduced level of "global quality" due to the absence of the associate quality impositions. These circumstances can also include the difficulties complying with the logistical organisation of deliveries and whether the costs of organising export actually give the profits required.

It is a regular conclusion that the costs of distribution of the product to a competitive marketplace influence the choice of the producer as to whether or not to invest in "quality". The size of the farm and the scope of its markets will also influence such a decision.

Where local sales are the focus, it is again the state of the market and the legislation in force that determines the state of "quality" within the production sector. This refers to how and where the products are sold (in shops, markets, etc.) and, in many cases, whether the consumer is prepared to pay for a "quality" product.

Consequently, one can assume that the three main influences on the adoption of a quality policy by the production sector are: (i) the buyer, hence the market demand; (ii) the legislator (e.g. HACCP); and (iii) the operator – for marketing and/or for self-regulation.

Within the Mediterranean aquaculture sector, those who are exporting to the EU Markets have adopted HACCP within the processing/conditioning sector as requisite legislative requirements.

The national EU markets have undergone, and continue to undergo, significant changes where the domination of the multiple supermarket stores for fish sales is clear in the northern parts of Europe. This trend is passing into the Mediterranean countries of the European Union. The results of this change for the consumer's point of purchase for fish are the following:

(i) Aquaculture producers will be increasingly expected to develop and respect the use of professional quality schemes.

(ii) The trend for producing "organic" or "biological" products will also increase.

(iii) The concentration of the points of purchase (multiples) will put increasing pressure on prices due to the economic power of the multiple supermarkets.

For the Mediterranean aquaculture operators to be stimulated to invest in the different "quality" items described, the opportunity to realise presence in "better" markets in order to obtain better profits must be one of the prime goals.

It is clear that some of the larger companies will be able to achieve this, through implementing the type of "quality" items described. For the smaller production units, the development of Quality Schemes, which they could adhere to, appears to be a promising approach. Such Quality Schemes have to exist as independent entities but can be controlled by existing bodies, such as National Aquaculture Associations.

For these to succeed, however, it is essential that there is Governmental recognition that such Quality schemes are required and that the provision of appropriate control procedures is supplied through official authority.

The reasons for this are relatively simple:

(i) Recognition that quality schemes are needed could lead to a plethora of such schemes, some of which may simply be seen as marketing tools.

(ii) A genuine quality scheme requires control and verification of the producer's activities and the products, assuring the quality items guaranteed by the scheme, requiring controllers (employed by the Quality scheme itself).

(iii) Poor or ineffective schemes must either not be approved or be eliminated.

(iv) A good Quality scheme must be credible and enforce its criteria on its members while being itself the subject of improvement and control.

The additional self-regulating aspects of quality can only be achieved through the adoption of Codes of Conduct or Codes of Practice, such as the FAO Code of Conduct for Responsible Fisheries (CCRF). Inevitably, the market will impose this sort of action automatically if the consumer is aware of the issues raised by such Codes. While these are presently considered to be morally binding issues, the establishment of quality depends on raising the awareness of the producer to his responsibilities as a food provider.