

Grain 8: Quality for aquaculture products

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Introduction

Hello,

We are going to talk on quality for aquaculture products. This has become something very important, but not only for aquaculture. In fact, quality is a major concern for all markets in general, but particularly for the food industries, and now for aquaculture too.

We will first try to understand what is quality and why it is important for aquaculture. Then we'll look at an example of a quality certification scheme for food products, with a guarantee provided by a State. This is the example of the signs of quality and origin, in France and Europe. Then we will look at aquaculture certifications with a broader perspective.

Quality

Firstly, the quality. Why are we interested by quality? In fact, for the consumer, the quality is based on a confidence relationship that may develop through the seller, when buying directly into a store, or more broadly, through any information that may be available. So, generally speaking, quality is something based on the trust that a consumer can have in a product. As you know, we are in a universe where consumers' requirements are very high with respect to food but since several media crisis or food scandals arose, a form of distrust developed so that consumers now need to be reassured. This generally increases the importance of quality certification of food products, because this certification will bring a proof, a guarantee that the product comes from a process that respected conditions that were predefined.

So, quality... You and me, and everybody, speaks of good quality, bad quality but in fact quality has a very sharp definition. As defined by AFNOR, the French Association for Standardization, or ISO, the International Standard Organization, its International equivalent, it is: *quality is a set of properties and characteristics of a service or a product, that bears on its ability to meet stated or implied needs.* So you see, it is an extremely broad definition that can be applied at all levels of industries, and particularly at the level of an aquaculture production industry.

The quality of a food product is a multiple concept. I talked in the introductory video of the six quality components a food product can have, according Deperrois. Here you have another proposal. This is the one produced by Mainguy, also known as the 4S theory. As

you can see there are vertical components of quality that I highlighted in orange: the food safety, it is obvious, the need to have safe food, and the nutritional quality. This is a slightly different approach, but still in accordance with the proposal of Deperrois. Horizontally, you have another two components, that have more to do with what Deperrois mentioned in the lower part of his graph: it is the social or psychosocial quality, and the quality of service either for the final consumer or for an intermediate processor. In any case, what you need to understand is that the quality and guarantees that brought by the certification schemes are always made of several components or dimensions.

The importance of quality nowadays results in the fact that quality concern has become ubiquitous in private companies. Quality initiatives, *ie* the will to implement a continuous improvement scheme through a predefined process are being put in place, and they translate into quality management initiatives that use different tools, some of which are extremely well known: The Deming wheel, which is a continuous improvement cycle: Plan Do Check Act, or the Ishikawa diagram to seek the causes for a dysfunction or to qualify impacts. So in short, it is a major concern for any company including of course aquaculture business, in order to improve the organization, above all, and improve the competitiveness of the company in a competitive world, obviously, where adaptation to changes, whether commercial or regulatory, is permanently required.

A word that must be defined is "*certification*". The official definition, as given by COFRAC, the French Accreditation Committee, is: *a procedure by which a third party, the certification body, gives a written assurance that a system of organization, a process, a person, a service, or a product complies with the requirements specified in a standard, ie in a written document that serves as a reference, and with the intervention of a third party, independent of both the producer and of course, its customers.*

Certification and certification schemes are very important in the food industries, as they are in several other industries, and they involve a lot of stakeholders. Two must be mentioned as they develop the standards. At the international level, ISO is the best known and the most important, and also AFNOR. There is also INAO, which I will mention later, and the various certification bodies that are accredited by public institutions in their respective countries, which will be responsible for conducting the two types of audits: audits for the initial certification and the periodic follow-up audits to check that the compliance with the conditions listed in the standard is still in place.

So why is it interesting for fishery and aquaculture products? At a national level, it is obvious: the quality is always an important consideration in commercial transactions, irrespective of the place, and it can also give added value to the products. But at the International level, aquaculture and fishery products are in a very special situation. First, International trade of seafood is very huge and rapidly developing, as you can see: its development has been continuous for years, and now, it involves 40% of the quantities produced across the world. This is very unique: none of the other agricultural product has its equivalent in terms of percentage, as you can see here. A second very important reason is that the larger importers across the world are the developed countries, as you can see on the left graph. The EU + US + Japan account for 64% of global imports by value. And what happens is that we are dealing with markets with very demanding

customers in terms of quality. This very high demand for quality impacts the producing countries, knowing that in the case of aquaculture, many producers are located in developing countries with markets in developed countries, *eg* shrimp producers. Thus, the extraordinary importance of quality in the International seafood trade. Another reason is the development of the various quality certification schemes so that today, aquaculture producers do not have much choice if they actually want to be able to convince their customers that their products can enter the markets of developed countries: in general, they will be required to enroll in a quality certification.

The signs of quality and origin

Second paragraph, or rather second chapter: the signs identifying the quality and origin. It is a scheme that is handled in France by the National Institute for Origin and Quality, a public body under the Ministry of Agriculture, but also connected to the Ministry of Economy and Finance as well as Agence Bio for organic productions. What is important to understand is that through this mechanism, the French State puts all its weight to guarantee the quality certification system and this is something that is highly acknowledged by French consumers.

INAO will manage the schemes that bring a guarantee of compliance with standards for the quality or origin of the products. I will introduce these quickly. And what needs to be understood and known, is that the relationship between INAO and the professional sector is very important for the development of the standards. Indeed, they are developed collaboratively by professional organizations grouped in Support and Management Bodies, the ODGs, a certification body chosen by the professionals and INAO, until an agreement is reached on the specifications to be listed in the standard that will support the certification program.

Some of you may know those signs that provide four different guarantees: the origin, a superior quality for the Label Rouge, a guarantee that a traditional recipe has been used or a guarantee that environmentally-friendly practices have been used for organic production.

The main features of these quality signs are as follows. The Protected Designation of Origin will guarantee a particular set of quality attributes linked to a designated terroir. The Label Rouge guarantees the product considered has a superior quality on the market. The Protected Geographical Indication, PGI highlights a link to the land and guarantees that there is a special connection to the territory. The Traditional Speciality Guaranteed protects a traditional recipe. And of course, there is the organic farming.

Incidentally, you may notice that three of these signs are European: the Protected Designation of Origin is the equivalent of the French *Appellation d'Origine Contrôlée*, but the PGI, Protected Geographical Indication and Traditional Speciality Guaranteed are exclusively Europeans, created in 1992. As regard to organic production, we had a French regulation, but today it is being replaced by a European regulation that will overlap the French one.

For aquaculture products, the use of those schemes was relatively late compared to other food products but it is now important. From 1990 the first Label Rouge for an aquaculture product was created for the Scottish salmon. Since, there have been 18 new Label Rouge developed for different fish species: bass, bream, meager, salmon, trout and turbot. Some have also been created for *P. monodon* shrimp farmed in Madagascar and for different oysters and mussels. In the case of oysters, these are Marenne oyster.

We also have PDO for mussels farmed in the bay of the Mont Saint Michel, a PGI for Marenne oyster, and also a Traditional Speciality Guaranteed for mussels.

Finally, there are also organic aquaculture schemes for many species of fish, shrimp and shellfish.

Aquaculture certifications

The last part of the presentation will deal with aquaculture certifications. Here we enter a world of an extraordinary diversity, which makes it difficult to grasp. Indeed, there are a wide variety of certification programs, stakeholders who implement them, and in addition, criteria that are taken into account. So for example, I suggest you look at the results of a study we achieved with two of my students in 2014. We surveyed global certification programs dealing with salmon, trout and shrimp aquaculture, with specifications aimed at promoting a sustainable production, *ie* with specific criteria promoting a low environmental impact and respecting fair conditions for people involved in the labor of these farms.

We found thirty such certification programs, initiated by many stakeholders. They had been promoted by the aquaculture industry, we found 6 of them, by the governments, we found 7 of them, some belonged to the Signs of Quality and Origin certifications that we just considered (Organic and Label Rouge), some were private organic farming certifications, we found 6, some were initiated by retail sector, 3. Three others were initiated by non-governmental organizations and another 3 of them belonged to the fair trade certification scheme.

So this gives you an idea anyway the profusion of certifications that may exist, since we just looked after 3 species, important of course, but only three species. And at the International level, there are also certifications for sustainable production.

So the very concrete result of this diversity, as we will see in the conclusion, is a difficulty for consumers to avoid confusion.

If you don't mind, we will now focus on 4 certification programs that are very important today throughout the world. They are international in scope and they aim at promoting a sustainable or responsible aquaculture, although no definition of what a sustainable or responsible aquaculture is given.

They are promoted by three NGOs and one large retail group. The first one is called GAP-GAA. It means Good Aquaculture Practices and the organization that created it is called the Global Aquaculture Alliance. The second one is called GlobalG.A.P., GAP also stands

here for Good Agriculture or Aquaculture Practices and GlobalG.A.P. is supported by a European retail group. Third one is Friends of the Sea whereas the fourth one is ASC, the Aquaculture Stewardship Council. GAP-GAA, Friends of the Sea and CSA, are non-governmental organizations.

If you don't mind, let's have a closer look at their history, objectives, types of standards and economic importance as of December 2015. The first one to have been created was BAP, created by GAA. It was established in 2000. It is promoting a responsible aquaculture with criteria on the environment and social components. It created multi-species standards for crustaceans or fish, with some specific requirements for shrimp and tilapia. Some specific BAP standards have also been developed for salmon and mussels. What is very interesting is to note that they also issued specifications for the feed, which will be delivered to the fish farm by example and therefore, there will be also the need for certifying the feed plant. Another characteristic is that the downstream chain is also considered in case of processing, thus the need for developing specifications for the processing plants.

The second one is GLOBALG.A.P., promoted by a group of European retailers, which created standards for agriculture and from 2004, for aquaculture as well as the sector was becoming important. Their objectives relate to food safety, product traceability, environment, animal welfare and social issues, and we considered that this set of specifications connects to a vision of sustainable production, and thus deserved to be taken into account when dealing with sustainable and responsible production. GlobalG.A.P made multi-species standards and establishes requirements for feed.

Friends of the Sea, is a non-governmental organization that initially focused on fisheries only by issuing standards for sustainable fishing. In a second step, they opened their field to aquaculture from 2006. They established standards for freshwater and marine fish farmed on land, for shrimp, mussels and also have requirements for feed.

And finally, the latest to produce responsible aquaculture standards is the Aquaculture Stewardship Council, creating standards for several species from 2012: tilapia, pangasius, bivalves, abalone, salmon, trout and shrimp. They also include the chain of custody, which is a value chain approach, into their standards in order to involve downstream sector stakeholders, processors and distributors in the certification.

The last column is about the economic importance. I think this is something interesting to consider. The most economically important is the GLOBALG.A.P. certification, covering in 2012 two million tonnes and 20 countries. The second one is BAP-GAA that was covering a little more than 1,000 units, of which a hundred hatcheries, more than 600 farms and 300 transformers and 56 feed mills in December 2015. The third one, as you can see, is ASC that is still young but experienced a very strong development, as it certifies more than 100 farms and 800 operators in the downstream chain. At the end of 2015, it had more than 4,000 certified products in 54 countries.

So what can we conclude? It is really worth to consider and follow these certifications aimed at promoting sustainable or responsible aquaculture today because they emerged as a response to certain important markets' demand, and the result is that producers often have no other choice but to get certified.

Conclusion

So to sum up, the quality certification schemes have indisputable virtues, as you can see in the table: recognition of some specific quality characteristics to products, better competitiveness, and an extremely important virtue: it is a way to better promote product and from a marketing point of view, it is actually a way to create market segmentation.

But there are also a certain number of disadvantages that should be emphasized. First, there is a multiplicity, an extraordinary diversity of standards, making it relatively difficult for consumers to make a decision. This is called consumers' confusion. It must also be stressed that for farmers, particularly for the small producers, it can be very difficult to get into the schemes for several reasons. Firstly, certification programs have a cost because audits have to be paid by producers and they are generally expensive. There is also the complexity of these programs. So in general, small producers are only able to enroll into quality certification if they do it collectively and if the certification schemes allow it.

If you want to go further, I recommend you read the documents published by FAO where you will find find literature on aquaculture certification and, more broadly, on the principles issued by FAO in support to a more consistent approach.

Thank you for your attention.