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1.0 Introduction

Certification is an important tool for competing on agrofood markets and for providing certified guarantees concerning the quality and safety of products. In Italy, certification has provided an effective tool for ensuring the growth and increased competitiveness of agrofood products. The combination of voluntary and mandatory EU system certification provided national companies with an opportunity to differentiate their quality productions, based on tradition and linked to the local territory, and to offer greater guarantees to the consumer.

Prominent among the phenomena emerging in recent years is the diffusion of organic products and the promotion and upgrading of typical products accomplished by means of the PDO and PGI labels. "Quality" products (PDO, PGI, DOC, IGT and organic products) represent the spearhead of the national agrofood sector. According to Ismea estimates, their total value in 2005 accounted for approximately 10% of total Italian agrofood production (Tab. 1). More specifically, the PDO and PGI labels accounted for 5.4%, quality wines for 2.8% and organic products for 1.6%.

Tab. 1. The relative weight of certified quality products in 2005

Incidence	Incidence of total sales on agrofood production	Incidence of consumption on total food consumption
PDO and PGI Products	5.4	4.5
PDO and DOCg Wines	2.8	1.5
Organic products	1.6	0.6
Total	9.8	6.6

The total market value of certified quality products, which is thus inclusive of both the volume of internal market business and exports, attained a value of nearly 15 billion euro, over 55% of which represented by PDO and PGI products, 28.6% by quality wines and the remainder by organic products (Tab. 2).

Tab. 2. The economic value of certified quality products in 2005

Products	Total market		
	Million €	as % of total quality	% variation 2005/2004
PDO & PGI Products	8,200	55.3	6.2
PDO & DOCg wines	4,240	28.6	-1.3
Organic products	2,400	16.1	0.0
Total	14,840	100	100

Products	Internal market		
	Million €	as % of total quality	% variation 2005/2004
PDO & PGI Products	7,253	60.9	6.5
PDO & DOCg wines	3,057	25.7	4.0
Organic products	1,600	13.4	0.0
Total	11,910	100	100

The value that can be assigned to the internal market alone is nearly 12 billion, with an incidence of over 80% of total sales, while the remaining 19.7% may be ascribed to exports.

As far as trends in overall market value are concerned, the 3% increase recorded in 2005 was due exclusively to growth in the PDO and PGI sector (+6.2%), as the value of Doc and Docg wines decreased slightly (-1.3%) while the bio sector remained stable.

As far as organic products are concerned, Italy is an absolute leader in Europe in terms of area cultivated, with over one million hectares dedicated to organic products (Tab. 3). The phases of the product chain more specifically addressed to the final consumer market (transformation, import, distribution) have proved to be dynamic and lively in recent years, and characterized by satisfactory trends in terms of company number and invoiced sales, thus confirming the presence of a more mature and more business oriented product chain than in previous years.

Tab. 3. Cultivated areas and value of the organic market in Europe

Countries	Area		Market value	
	Thousand hect. 2005	% variation 2005/2004	Million € 2005	% variation 2005/2004
Italy	1,067	11.8	2,400	0.0
Germany	807	5.1	3,900	11.4
Spain	807	10.1	n.d.	n.d.
UK	619	-10.3	2,400	34.5
France	560	4.9	2,200	15.8
Total Europe	6,900	6.2	14,333	25.5

2.0 Historical background

The healthiness and safety of agrofood products are guaranteed by international and national legislation by means of compulsory technical rules to guarantee the consumer's safety and health (mandatory certification). Voluntary quality schemes are an additional guarantee, regulated by technical rules or equivalent regulatory standards produced by Certification Bodies and adopted by the individual companies (voluntary certification). The food quality certification schemes may be divided into: the system/process certification and product certification (Tab . 4):

To obtain certification the company must be subjected to the control of an independent certification body that has the task of certifying the truthfulness of the company's declarations and of monitoring that this remains constant over time. The certification process entails a complex procedure that is subjected to verification by accredited bodies. In Italy the system is based on bodies that are concerned respectively with the issue of standards, accreditation and certification (Tab. 5).

The company may communicate the fact that the certificate has been obtained by including it in the label issued by the certification body verifying the truthfulness of the declarations.

2.1 System or process certification

This type of certification may involve two different standards having different purposes:

1) quality system certification, which involves the entire organization and its productive process. The standards are those of product chain traceability UNI 10939 and the ISO 9000 series;

2) certification of the environmental management system, which refers to the entire productive organization but is concerned also with a correct management of the environmental aspects. The reference standards are the ISO 14000 series and the EMAS regulations.

In the area of process certification mention must be made of “Good manufacturing practices” (GMPs). These are voluntary standards governing good operational practices applied in a company during the handling and processing of the product. GMPs may be drawn up by the company itself or by independent third-party bodies. They generally apply to specific aspects of the marketing chain. They are used as guidelines or certification outlines or for awarding quality prizes.

Tab 4. Main food quality certification schemes

Certification standards	
System or process certification	<p>Guarantees that the characteristics of the system comply with given UNI EN ISO standards or with European regulations.</p> <p>The assessment takes into account the capacity of the company or organization to organize itself and manage its resources and productive process in such a way as to recognize and satisfy given characteristics of (economic, environmental, ethical, etc.) quality.</p>
Product certification	<p>Guarantees the product is compliant by means of laboratory conformity tests.</p> <p>It is based on production rules specifying the procedures and methods to follow in order to obtain a product with certain characteristics.</p> <p>The production rules can contain indications regarding physical, chemical, microbiological, sensory and/or technological characteristics, or else delimit the geographic area from which the product originates and the elements proving the links between the product and its area of origin or the description of the methods for obtaining it.</p>

Tab. 5. Bodies participating in the standardization and certification processes

Bodies participating in the standardization and certification processes		
Tasks	Body	Activities
Standardization Refers to the legislative bodies	ISO International Standard Organisation	Has the aim of promoting the introduction of world standards in order to harmonize regulations and facilitate the exchange of goods and services. Its membership consists of the standards organizations of 76 countries (UNI for Italy)
	UNI Ente Nazionale Italiano di Unificazione	The Italian standards organization for the industrial, commercial and tertiary sectors. Its principal activities are: a) to introduce technical standards, b) to promote the harmonization of standards with other international bodies, c) to publish and disseminate technical standards.
	European Union	The European Commission carries out legislative activities and issues ad hoc standards or standards incorporating other international standards
	Ministry of Agricultural Policies	Carries on legislative activities to transpose EU regulations and acts to evaluate certifications in accordance with regulated standards
Accreditation Refers to the bodies having control tasks	SINCERT National System for the Accreditation of Certification Bodies	Carries out the formal recognition of a body's suitability for certifying products and/or quality systems. By means of accreditation it verifies whether the certification body is operating correctly in terms of impartiality and professionalism using well defined procedures.
	SINAL National System for Laboratory Accreditation	Has the task of accrediting national laboratories for the purpose of verifying whether the results of the tests carried out are acceptable according to the protocols recognized in Italy and abroad. SINAL is a member of EAL (European Accreditation for Laboratories), and so its accreditation is recognized by all the other countries belonging to this organization.
	SIT Service of Calibration in Italy	Has the task of accrediting test laboratories in order to guarantee their competence and thus the reliability of the tests and analyses performed.
Certification	Certification bodies	Accredited body which certifies compliance. It is the body that assists the company through the certification procedure and, after a verification process, grants certification attesting that the product or service is compliant with a give standard referring to a given quality system.

ISO 9000:2000

The ISO 9000 family of voluntary standards consists of rules to guarantee the quality of productive processes by enhancing the management systems employed inside the company

The ISO 9000 family of standards has been updated with the ISO 9001/2000 standard which, in Italy, has been given the name of VISION 2000 and consists of the following:

- ISO 9000/2000: describes quality management systems, specifying the relevant terminology
- ISO 9001/2000: specifies the requirements of the quality management system that an organization must apply in order to demonstrate it is capable of providing products that can satisfy its customers' requirements and the cogent applicable requirements and aims at obtaining customer satisfaction.
- ISO 9004/2000: provides guidelines for the purpose of assisting the organization in the process of continuous enhancement of its performance and the satisfaction of its customers and the interested parties.
- ISO 19011/2003: provides a guide to the inspection verifications of the quality management systems (UNI EN ISO 9001:2000) and of the environmental management system (UNI EN ISO 14001:96).

2.1.2 Certification of environmental management system

ISO 14000:2004

ISO 14000 denotes a series of international standards referring to the environmental management of organizations and does not refer to the product. It is a voluntary standard designed to prove that the certified organization has a management system that is suitable for controlling the environmental impact of its activities.

In particular, for the 14000 family of standards, the ISO 14001:2004 provides the guiding requirements for implementing an environmental management system (SGA).

The ISO 14001:2004 has been transposed into EC Regulation no. 761/01 (EMAS) and is now an integral part of annex I which states that the environmental management system for an organization intending to obtain EMAS certification must comply with the above standard.

EMAS II (Environmental Management and Audit Scheme)

This is an EMAS system referring to a standard for environmental quality certification recognized by the European Union through the EC regulation governing eco-management and audit (EC) 761/2001, which repeals and replaces the preceding regulation 1836/93. This standard is open to any organization in the public or private sector that intends to improve its own environmental efficiency.

The Italian accreditation system was established by DM 413/95 which entrusts this task to the *Ecolabel and Ecoaudit Committee - Italy EMAS Section*, which relies on the Agency for the Protection of the Environment and Technical Services (APAT) regarding the technical aspects for which it is competent.

The standard refers to production sites and not to the companies themselves. This makes it possible for the companies to demonstrate that they have applied an Environmental Management System at a given site in order to control all the activities having an impact on the environment. A company accepting the EMAS system obtains the registration of the site in a "European Register", which allows the company to use a logo certifying EMAS recognition.

ISO 22000:2005

ISO 22000:2005 is a voluntary standard of fundamental importance for safety management systems in the agrofood sector which allows all the companies involved in the chain to identify the risks to which they are exposed and manage them effectively. It is designed to be compatible and harmonized with the other international management system standards such as ISO 9001. ISO 22000 is the first of a series of standards governing the management of food product safety, of which the following documents are a part:

- ISO/TS 22004:2005 "Food safety management systems - Guidance on the application of ISO 22000:2005", which provide information on how to apply the standard, in particular for SMEs;
- ISO TS 22003:2007 "Food safety management systems - Requirements for bodies providing audit and certification of food safety management systems", which lays down harmonized guidelines for the accreditation of ISO 22000 certification bodies by setting the rule for evaluating a food safety management system and for ascertaining its compliance with the standard;
- ISO 22001, currently under study, will replace the ISO 15161:2001 standard "Guidelines on the application of ISO 9001:2000 for the food and drink industry";
- ISO 22002 "Quality management systems - Guidance on the application of ISO 9001:2000 for crop production";
- ISO 22005:2007 "Traceability in the feed and food chain - General principles and guidance for system design and development" incorporates the Italian UNI 10939:01 standards referring to a "Traceability system in agrofood chains" and UNI 11020:02 referring to a "Traceability system for agrofood companies" and applied to the entire agrofood sector.

Good manufacturing practices

The best known GMP Standards in Europe referring to the fish product sector is The Codex Standard for Fish and Fishery Products (volume 9 Codex Alimentarius, 1999).

The Code of Conduct for European Aquaculture (FEAP, 2000) is inspired to the principles of the Code of Conduct for Responsible Fisheries (FAO, 1995). It' is currently under review to provide practical guidance on issues concerning sustainability, consumers and the environment. This revised Code of Conduct will serve as a basis for the development of national Codes of Practice or Codes of Conduct, in order to interpret and apply existing standards and to develop, refine or improve standards. The final version of the Code is expected by the end of 2008.

GMPs for fish products have been developed in many European countries: Norway, the UK, Portugal, France. In Italy, the Italian Fish Farmers Association (API) drew up the Code of Best Practices in Aquaculture (API, 2002).

2.2 Product certification

Voluntary product certification is intended to demonstrate and promote the peculiarities of a product on the basis of the qualitative, commercial and geographic characteristics of the production territory. Voluntary certification is of particular interest for the companies as it allows a standard to be defined independently by defining the product characteristics they believe are most appreciated by the market. Voluntary Product Certification may be either regulated or non regulated.

2.2.1 Regulated product certification

European Standards: PDO, PGI and TSG

Within the framework of product certification, the geographic indication system has over the years increasingly taken on the role of protection of the culture, tradition and history of a geographical location, thus extending well beyond the function of protecting an individual product. The Table 6 illustrates the EC regulations governing each of the quality labels.

The Ministry of Agricultural, Food and Forestry Policies, overhauled its procedures ((Ministerial Decree of 17 November 2006) governing new applications for the PDO/PGI registration of agrofood products pursuant to Council Reg.(EC) 510/2006.

According to recent CIHEAM data referring to January 2008, Italy ranks first with 166 certified products, of which 110 PDO, 55 PGI and 1 TSG, followed by France, Spain, Portugal and Greece (CIHEAM, 2008).

Seafood products are represented only to a small degree in the PDO and PGI categories. In all the European countries only 13 for seafood products have been registered, 3 PDO and 10 PGI, as shown in the table below (Tab. 7).




As far as the certification control structure in Italy is concerned, there are 19 authorized public control bodies and 23 private bodies (data updated to April 2006; ISMEA, 2006). Council Regulations EC 510/2006 and 509/2006 state that the accreditation of control bodies pursuant to the EN 45011 standard must start from 1 May 2010. As at 2006, only 14 out of the 23 (60.9%) authorized bodies tested had been accredited (ISMEA, 2006).

Traditional agrofood products

"Traditional products" are agrofood products, the processing, conservation and seasoning methods of which have been consolidated over time, are uniform over the entire territory involved and follow traditional rules, for a period of not less than twenty-five years (D.M. 18 July 2000).

The regions draw up lists of traditional products which are then included in a national list published by the Ministry of Agricultural, Food and Forestry Policies.

Tab. 6. Principal characteristics of the European Standards: PDO, PGI and TSG.

Principal characteristics of the European Standards			
Certification system	Logo	Specifications	Regulation
<p>PDO</p> <p>Protected Designation of Origin</p>		<p>certify foodstuffs which are produced, processed and prepared in a given geographical area using recognised know-how.</p>	<p>Council Regulation (EC) No 510/2006 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs, and the following implementation Commission Regulation (EC) No 1898/2006</p>
<p>PGI</p> <p>Protected Geographical Indication</p>		<p>the geographical link must occur in at least one of the stages of production, processing or preparation.</p>	<p>Council Regulation (EC) No 510/2006 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs, and the following implementations: Commission Regulation (EC) No 1898/2006 of 14 December 2006 and Commission Regulation (EC) No 1216/2007</p>
<p>TSG</p> <p>Traditional Speciality Guaranteed</p>		<p>This certification does not refer to the origin but highlights traditional character, either in the composition or means of production.</p>	<p>Council Regulation (EC) No 509/2006 on agricultural products and foodstuffs as traditional specialities guaranteed and the following implementation Commission Regulation (EC) No 1216/2007</p>

Other typical products

In addition to the regulated sector (PDO, PGI, TSG), in Italy there are other kinds of typical products, the recognition of which is regulated by the Understanding between Government, Regions and Autonomous Provinces of Trento and Bolzano governing waivers for traditional products pursuant to Council Regulations EC 852 and 853/2004.

Slow Food presidia

The presidia set up on the initiative of the SLOW FOOD cultural association comprise a list of products in danger of extinction that possess particular food characteristics which the association vows to safeguard. They represent a limited set of production rules and do not envisage third party control. The Slow Food presidia support small-scale productions of excellence that are in danger of disappearing, promote specific territories, recuperate traditional trades and processing techniques and safeguard biodiversity. The presidia involve the producers directly, provide assistance for enhancing product quality,

facilitate exchanges among different countries and seek new (local and international) market outlets. In Italy, there are about 200 Slow Food presidia which comprise different types of foodstuff.

The “Arca del Gusto” travels the world collecting small productions of gastronomic excellence threatened by industrial agriculture, by environmental degradation, and by standardization. In Italy, Arca del gusto products are 427.

Tab. 7. List of seafood DPO and PGI products in Europe (2006).

List of seafood DPO and PGI products				
Name of the product	Protection System	Country	Category	Producers
Oberpfälzer Karpfen	PGI	Germany	Carp	Teichgenossenschaft Oberpfalz
Schwarzwaldforelle	PGI	Germany	Trout	Verein zum Schutz der Herkunftsbezeichnung Schwarzwaldforelle / Sitz in Freudenstadt
Holsteiner Karpfen	PGI	Germany	Carp	Verband der Binnenfischer und Teichwirte Schleswig-Holstein e.V.
Pohořelický kapr	PDO	Czech Republic	Carp	Rybníkářství Pohořelice a.s.
Trebonský kapr	PGI	Czech Republic	Carp	Rybárství Trebon a.s.
Avgotaracho Messolonghiou	PDO	Greece	Fish eggs	Mesolongi Municipality
Anchois de Collioure	PGI	France	Anchovy	Association de promotion et de défense de l'anchois de Collioure
Coquille St. Jacques des Côtes d'Armor	PGI	France	Scallop	Organistaion de producteurs des Côtes d'Armor
Clare Island Salmon	PGI	Ireland	Salmon	Irish Seafood Producers Group
Mejillón de Galicia	PDO	Spain	Mussels	Organización de Productores de Mejillón de Galicia
Arbroath Smokies	PGI	U.K.	Haddock	The Arbroath Fish Processors Association
Scottish Farmed Salmon	PGI	U.K.	Salmon	Scottish Salmon Producers' Organisation
Whitstable oysters	PGI	U.K.	Oyster	The ancient oyster companies of Whitstable and Faversham

Municipal denominations

More than 400 Italian municipalities have resolved that typical agrofood products are present in their territory on the basis of law no. 1421 of 1990 in the sector involving the promotion of traditional agrofood activities. So far no legislation has been approved to regulate the application and protection of typical agrofood products, although some administrations are taking steps to register the products with the Chambers of Commerce by means of a collective geographic mark.

Eco-labels

The EU has an eco-labelling scheme that covers some 20 industrial product groups. The ecolabel certification and schemes are, however, applied to industrial and forestry sectors but they do not apply to food products drinks and medicines (Ojeda, 2007). Within the Reformed Common Fisheries Policy, ecolabelling is seen as a possible way of integrating environmental aspects into the fisheries sector in order to ensure a sustainable exploitation of living aquatic resources. The FAO guidelines were set in 2005 and contain ecolabelling schemes designed to certify and promote labels for products from well-managed marine capture fisheries (FAO, 2005). The standards comprise quantitative and qualitative indicators of the governance system or management regime of a fishery as well as conservation of marine fishery resources and related ecosystems. The Communication of the European Commission COM(2005)275 final: "Launching a debate on a Community approach towards eco-labelling schemes for fisheries products" underlined that an eco-labelling policy should stimulate environmental responsibility of both managers and fishermen by making them more conscious of the environmental impact of fisheries.

As far as aquaculture products, the Communication of the Commission COM(2002)511 final: "A Strategy for the Sustainable Development of European Aquaculture" did not mention eco-labelling, but included both 'organic' and 'environment friendly' production technology as tools for improving sustainability of aquaculture productions. Nevertheless, in 2005 the Opinion of the European Economic and Social Committee on the Eco-labelling of fisheries products (NAT/286) on COM(2005)275 specify that aquaculture products are included with those of fisheries. The debate if ecolabel schemes have to be applied to seafood production, including aquaculture, is still open at European level. According to FEAP (2007) ecolabelling of aquaculture products should be separated from that of fisheries and designed on the basis of Environmental Management schemes, such as ISO 14100 and EMAS.

At the international level some eco-labels for fishery products already exist, the standards of which are aimed at safeguarding natural resources. The most important eco-labels and their aims are illustrated in the table below (Tab. 8).

Tab.8. Main eco-labels safeguarding natural resources.

Eco-labels	Objectives
Dolphin safe	Safeguarding of dolphins during tuna fish capture
Marine Stewardship Council	Safeguarding of fishing resources and sustainability
Friend of the Sea	Safeguarding of fishing and farming resources and sustainability

Organic production

The organic products market is enjoying a phase of rapid expansion favored by the large-scale distribution (LSD) outlet channels. Over the past 10 years, the organic foodstuffs sector has shown the fastest growth in the foodstuff chain, with a mean annual growth rate of 10% (Fibl-IFOAM, ISMEA data, 2007). The European market value was 13-14 billion euro in 2005.

The Italian market ranks second in Europe (2.4 billion, including the value of exports). Growth in the consumption of organic products in Italy has ensured a definitive place in the organic foodstuff chain in the national agrofood market, as has happened also in many other European countries.

Italy occupies first place in Europe and in the Mediterranean regarding the total area given over to organic farming and the number of companies involved. In 2006, the area being converted or already converted to organic farming amounted to over 1.15 million hectares, with an increase of 7.6% on 2005 (MIPAF-Sinab Data), with Italy ranking first in Europe and fifth in the world (The World of Organic Agriculture – Statistics and emerging trends).

Those operating in the sector, who numbered 51,065 in 2006, 88.3% of whom operating as producers, and 9.3% as transformers and the remainder as importers, showed a 2.4% increase over 2005 (ISMEA, 2007). Data breakdown by geographic area reveals a concentration of production companies in the South and on the Islands (Sicily and Calabria), and a concentration of transformation and import companies in the North (ISMEA-IAMB, 2008).

According to MIPAAF data, national organic farming activities in 2006 were marked by the prevalence of forage and cereal crops which together accounted for about half of the area devoted to organic farming. Organic livestock production in Italy has not followed the same growth and development trends as farming. Of the various production types, sheep and goat organic rearing showed an increase. In 2006, sheep and goat production rose by 15% and 5%, respectively, compared with 2005. In organic honey production the number of hives increased by 18% over the previous year.

Organic aquaculture is gaining more and more importance in seafood market in Europe as well as in United States. The current global production is estimated in 23,500 tons and in about 150 million euro (Tab. 9). Total certified farms were 113 and 13 the reared fish and shellfish species (Bergleiter et al., 2008). In Europe organic food attained an output of 14 thousand tons, representing 56% of world organic output, for a total value of 70 million euro. Currently, the main organic fish species that have attained significant production volumes are salmon and trout (Tab.10).

Organic aquaculture has a potential for growth also in Europe where the sector, although remaining a niche industry, can fill substantial market area having a high economic value. Within the EU countries, for example, it has been found that 86% of consumers would be willing to pay about 15% more for organic farmed fish.

The output of organic sea bass and sea bream is still limited, flattening out at around 160 tons per year, although it could rise to 4-6 thousand over the next few years.

There is growing interest in shellfish products, in particular, mussels, although the definition of organic applied to these species still encounters some difficulty

As far as production trends are concerned, it is estimated that organic salmon output in Europe will rise from the 10 thousand tons of 2005 to 17 thousand tons in 2008, with an increase in value of 91 million euro.

Tab. 9: Estimated global organic aquaculture production and certified farms (2006/2007)

Fish/shellfish species	Number of producer	Estimated Quantity (ton/y)
Carp	20	400,00
Cod	3	2.000,00
Crayfish	1	-
Mussels*	2	-
Pangasius	1	1.000,00
Prawns/shrimps	14	4.000,00
Salmon	20	12.000,00
Sea Bream	2	300,00
Sea Bass	2	300,00
Silver Perch	1	-
Sturgeon	1	-
Tilapia	4	2.000,00
Trout	42	1.500,00
Total	113	23.500,00

* Oyster, Blue Mussel. Source: Organic Services 2007

Tab.10. Organic aquaculture production in Europe (2003) Source: Conference "Organic Aquaculture in the European Union: Current Status and Prospects for the Future". 2005

Country	Species	Quantity (tons)
Ireland	Salmon	5.600
	Trout	120
	Mussels	900
United Kingdom	Salmon	5.117
	Trout	318
France	Trout	250
	Salmon	50
	Sea bass, sea bream	160
Italy	Trout	320
Spain	Trout	50
	Sturgeon	200
Austria	Carp	70
	Trout	10
Germany	Carp	10
	Char	3
	Trout	60
Norway	Salmon	20
	Char	40
Sweden	Trout	50
Denmark	Trout	40
Hungary	Carp	n.d.
	Catfish	n.d.
Switzerland	Trout	220

In Council Regulation (EC) no. 834/2007, which will come into effect on 1 January 2009, for the first time an organic regulation includes live and non processed aquaculture products (Art. 15) as well as processed aquaculture products. Art. 42 of the regulation states that until detailed EU production rules are introduced for certain species, member states are allowed to apply national regulations or, in their absence, private standards accepted or recognized by them. As no standard regulations have been issued for organic aquaculture practices by the international bodies, private certification bodies have independently devised a number of production rules for fin fish and shell fish.

The table 11 summarizes European legislation and policies governing organic production.

Tab. 11. European legislation and policies governing organic production.

Regulations	Contents
Council Regulation (EEC) no. 2092/91 referring to the method of Organic production of agricultural products	it lays down the criteria and fundamental rules that operators must respect in order for a product to be recognized as Organic.
Council Regulation (EEC) no. 1804/99 which completes the Organic production method for animal productions	it regulates the Organic livestock sector, but is not applicable to aquaculture. In Italy il DM del MIPAF Ministerial Decree of 4 August 2006 as subsequently amended on 29 March 2001 implements the EC regulations.
European action plan for Organic agriculture (2004)	it indicates the strategic medium term objectives in support of the development of European Organic agriculture.
Council Regulation (EC) no. 834/2007 referring to Organic production and the labelling of Organic products	it states the objectives, principles and production standards for all Organic products, aquaculture products (art.15) and processed foodstuffs

The International Federation of organic Agriculture Movements (IFOAM), a qualified organization in the organic sector, has drawn up basic standards embodying the fundamental principles governing organic aquaculture regarding general rearing conditions, conversion of traditional methods to organic production, plant location, animal health and welfare, rearing strategies, animal feeding, capture, transport and slaughter. In Europe there are about 25 private and public bodies involved in the certification of organic aquaculture productions (Tab. 12). Among the EU countries only France and Denmark have drawn up national regulations.

Tab.12. Private and public bodies involved in the certification of organic aquaculture productions in Europe

Country	Certification body	Species
Austria	Bio Ernte	Carp, trout spp.
Denmark	National Organic Label	Fresh and saltwater fish
France	Fnab Ab, Ecocert	Trout Salmon, sea bream, sea bass
Germany	Naturland Bioland, Biopark, Biokreis Demeter	Salmon, trout, carp, mussel Carp Carp
United Kingdom	Soil Association Food Certification Scotland Organic Food Federation	Salmon, trout, mussel Salmon, trout Trout spp.
Ireland	Irish Organic Farmer Grower	Salmon, mussel
Italy	Aiab QC&I, SoCert, Icea	Trout spp., salmon, eel, carp, sea bass, sea bream Trout spp., sea bass, sea bream
Spain	Caae	Sturgeon, trout
Sweden	Krav	Salmon, trout spp., char
Hungary	Biokontrol	Carp
Island	Tun	Salmon
Norway	Debio	Salmon, trout spp. char
Switzerland	BioSuisse	Trout spp., char, carp, tench, perch

2.2.2 Voluntary product certification schemes

Quality marks

Quality marks do not represent certification but have the purpose of distinguishing the labeled product from other similar products. The table below (Tab. 13) illustrates the principal quality marks and the characteristics that distinguish them.

The collective trademark has found wide application in the Italian agrofood system, including seafood products. One particular type of collective trademark is represented by the so called regional collective trademarks which have the peculiarity that the organization that owns the mark is a public entity, namely the Region.

Tab. 13. Main voluntary quality marks

Label	Distinctive characteristics
Conformity mark	Distinguishes a given product on the basis of tests and verifications. Mark of conformity may be compulsory, such as the EC marking to guarantee that certain products satisfy essential safety requirements laid down in EU directives.
Company mark	Identifies a product as belonging to a specific producer, distinguishing the product solely from the commercial point of view. The company mark is regulated by arts. 2569-2574 of the Civil Code as well as by R.D. no. 929 of 21 June 1942, as subsequently amended by D.lgs no. 480/92 and D.lgs 198/1996
Collective trademark	Represents a form of guarantee of a private nature regarding product names subjected to public recognition. It makes it possible to demonstrate that the products involved possess certain quality characteristics and the existence of a control system. This mark may be used in conformity with the regulations adopted by the management body. R.D no. 929 of 21 June 1942.

Agrofood product standards in large-scale distribution

Over the past decade, the large-scale distribution has begun to play an increasingly decisive role in the agrofood product trade, taking on the role of chain leader and guaranteeing the quality and the safety of the products sold, from the production stage to that of distribution and sale to the final consumer.

For some time now, the main distribution chains, both in Italy and abroad, have begun marketing products under their own brand names, guaranteeing control throughout the chain, food safety and high quality standards.

Some examples in Italy are “il Pesce a marchio COOP ” and “Rintracciabilità della filiera trote iridee – spigole e orate del golfo di Patti” in conformity with the technical specifications of Certiquality.

In Europe several important marks may be recognized such as EFSIS (European Food Safety Inspection Service), BRC (British Retail Consortium) and EuropGAP (Euro retailer Produce Working Group), which are establishing themselves in the large-scale distribution circuit. The foodstuff standards drawn up by these retailer associations and organizations are based on GMPs. EurepGAP in particular has developed an ad hoc standard for salmon.

3.0 Current picture regarding seafood certification in Italy

3.1 Seafood production, import and export

The European Union ranks third in the world in the fishing industry, after China and Peru, with an output of about 7 million tons in 2005 (ISMEA, 2007). It suffered a dip of 2.9% over the previous year. Some 81.8% of production is accounted for by fish

products deriving from fishing activities while the remaining 18.2 % comes from fish farming.

Italy ranks six in the EU for fisheries production (Fig. 1) In 2006, Italian **fisheries production stood at** more than 538 thousand tons, about 55% of which from fish capture and 45% from aquaculture. The total value of the product is estimated at 2,142 million euro, of which fish farming accounts for 29.4% and fish capture some 70.6 %.

Fig. 1. Fishery and aquaculture production in Europe (thousand tons in 2005)

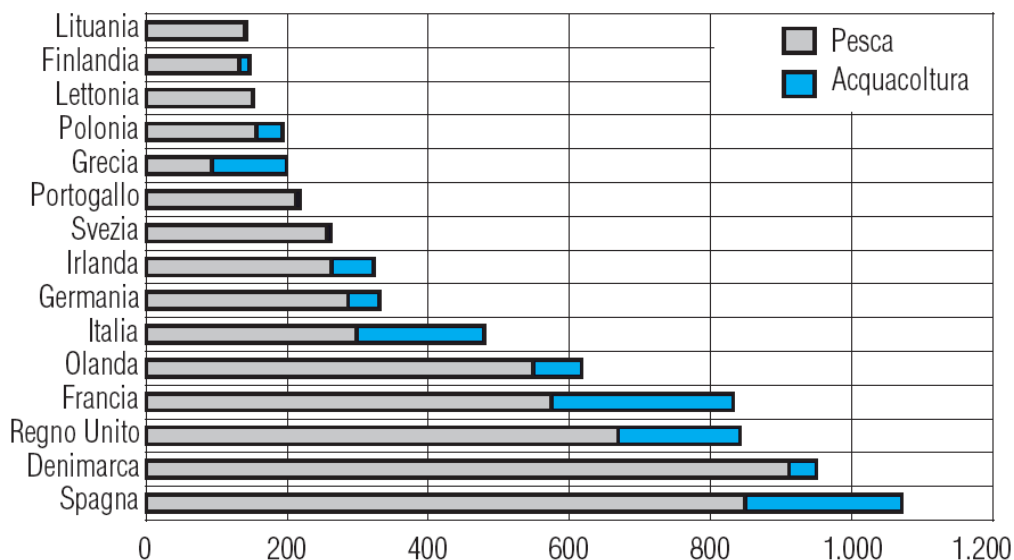


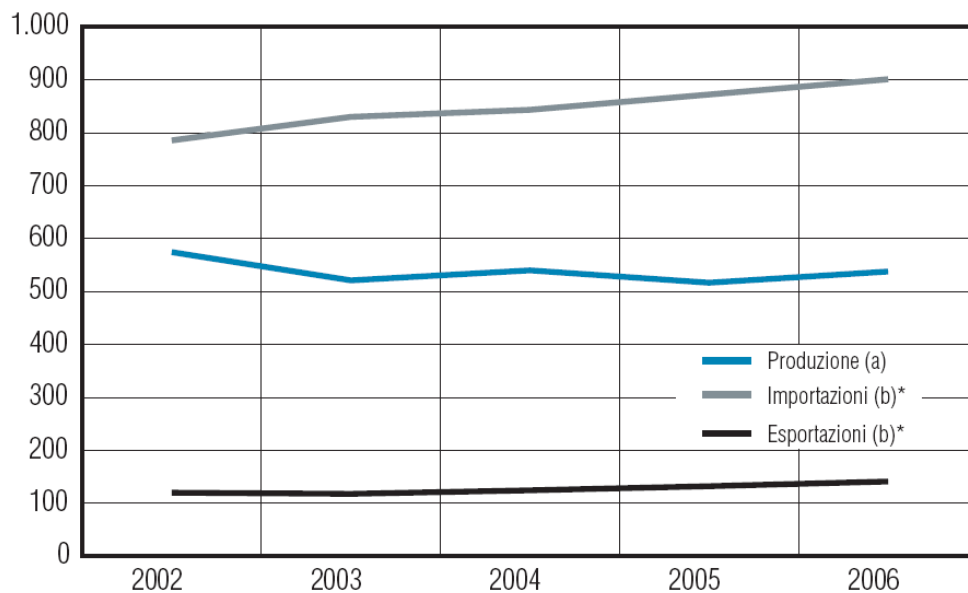
Fig. 2 illustrates the trends in the production, import and export of seafood products. In the period 2002-2006, fish **exports** tended to increase. In 2006, foreign sales rose to 141 thousand tons for a total value of 555 million euro (+6.9% by volume and +17% in value over 2005).

The structural dependence of the Italian seafood product market on foreign imports persisted, continuing to increase albeit at a slower rate than exports. In 2006, fish product **imports** exceeded 900 thousand tones for a total value of 3,669 million euro (+3.4% by volume and +8.8% by value). The normalized balance in 2006 was highly negative, -72.9% by volume and - 73.7% by value. At EU level, Italy is the country most dependent on foreign imports, and only in extra-EU trade does its deficit rank third after that of Spain and the UK.

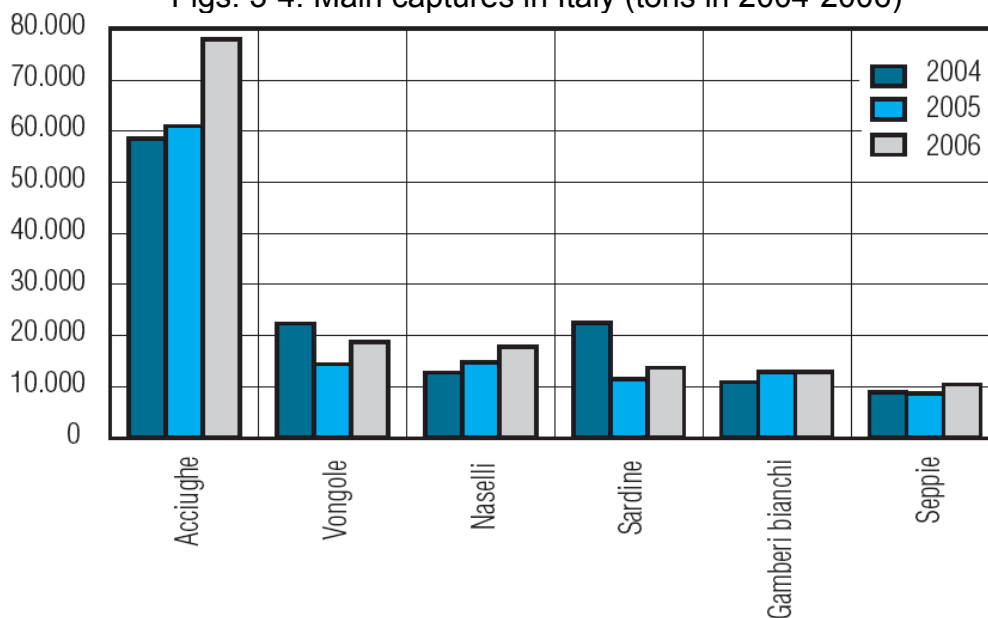
Table 14 shows Italian **aquaculture production** in Italy. In 2006, shellfish production accounted for about 70% of output and farmed fish the remaining 30%, while the value of the two productions was roughly equal. Both shellfish and fish showed an increase in quantitative terms and in value versus 2005.

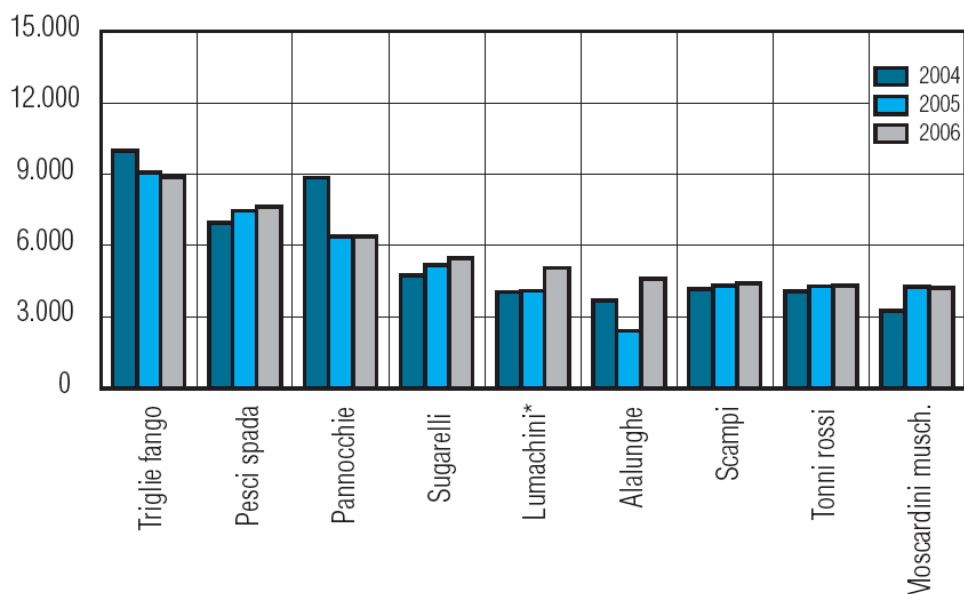
Italian fishing output comprises numerous species, but only a few are actually important. The majority consist of 'blue' fish. In particular, anchovy capture in 2006 totaled 78,000 tons, or 27.3% of the total (Fig. 3-4). Included among the top ten are manila clams, Mediterranean hake, European pilchard, shrimp, cuttlefish, mullet, swordfish and mantis shrimp.

Fig. 2. Italian seafood production, import and export (thousand tons in 2002-2006)



Figs. 3-4. Main captures in Italy (tons in 2004-2006)





Legend: Acciughe – Anchovies; Vongole – Manila Clams; Naselli - Mediterranean Hakes; Sardine - European Pilchards; Gamberi – Shrimps; Seppie – Cuttlefish; Pesce spada – swordfish; Pannocchie – Mantis shrimps; Sugarelli – Horse mackerel; Lumachini- Gastropods; Moscardini – Octopus; Alalunga –Albacore; Scampi – Norway lobster; Tonno rosso – Bluefin tuna; Triglie di fango – Red mullets.

Tab. 14. Italian aquaculture production in 2006

Species	Quantity tons	% Weight		%Variation 06/05	Value Millions €	% Weight		%Variation 06/05
Sea bass	9,300	3.8	12.9	2.2	66	10.5	19.4	7.8
Sea bream	9,500	3.9	13.2	0.0	64	10.2	18.8	7.6
Mullet	3,000	1.2	4.2	0.0	12	1.9	3.6	20.0
Eel	1,700	0.7	2.4	3.0	15	2.4	4.5	16.1
Trout*	40,200	16.6	55.9	1.8	133	21.1	38.9	10.4
Catfish	600	0.2	0.8	-14.3	2	0.4	0.7	-14.3
Carp	700	0.3	1.0	7.7	2	0.3	0.6	0.8
Sturgeon	1,300	0.5	1.8	8.3	10	1.7	3.1	57.6
Other fish **	5,600	2.3	7.8	-	36	5.7	10.5	-
Total fish	71,900	29.7	100.0	4.1	341	54.2	100.0	14.8
Mussel***	125,000	51.7	73.5	0.0	81	12.9	28.2	0.0
Clam	45,000	18.6	26.5	12.5	207	32.9	71.8	12.5
Total Mollusc	170,000	70.3	100.0	3.0	288	45.8	100	8.7
Total production	241,900	100	-	3.3	629	100	-	11.9

* The value of trout includes also the added value of the product processed fresh on site.

** The category “Other fish” includes the production of umbrine, white bream, dentex, hybrid striped bass, char, pike and, starting from 2006, red tuna.

*** Including natural bed mussels.

Source: Ismea processing of Api/Icram data.

Shellfish farming is based almost entirely on mussel (*Mytilus galloprovincialis*) and manila clam (*Tapes philippinarum*) production. Fish farming mainly produced trout (40,000 tons), sea bass (9,300 tons) and sea bream (9,500 tons), the production of which has remained stable over time. In 2006 eel production increased by 3% on 2005, although it has dropped considerably over the past 10 years (3000 tons in 1995). Sturgeon farming, aimed above all at caviar production, rose to 1,300 tons in 2006, an increase of 8.3% compared with the previous year.

Internal **consumption** of seafood products increased in both its domestic and extradomestic components: per capita consumption rose to 22 kg in 2006. According to the Ismea-ACNielsen survey, purchases by Italian families increased by 3.9% in 2006. Overall, in 2006, seafood purchases exceeded 455 thousand tons, for a total cost of 4.3 bn euro. The gradual increase in the domestic consumption of seafood products that occurred in recent years came about despite increased consumer prices. The Ismea index of seafood product prices recorded a 6.2% increase over 2005 and a mean annual growth of 2.5% in the period 2002-06.

Analysing product typologies, fresh and unfrozen seafood in 2006 accounted for over 52% of the annual domestic demand for seafood products by both volume and value; preserved and semi-preserved products accounted for about 20% in quantity and by value, while the relative weight of frozen/deep frozen product increased in recent years, exceeding 15% in 2006. The domestic purchase of seafood products in 2006 took place to the extent of 67.4% of the total by volume of seafood product sales through the modern distribution system.

3.2 Seafood certification - current picture

Seafood certification has been recognized as an opportunity for Italian companies and individual producers to compete in the market. The need for the companies to demonstrate to their customers the qualitative characteristics of their production systems and/or their product has led them to come to grips with the context of regulation and certification.

As far as the certification of production system, an increasing number of leading fish farming companies have adopted accredited and non-accredited systems. The UNI EN ISO voluntary certification system in Italy is by far the most common and recognized method. ISO voluntary certification is becoming a new area of competition among fish farming companies and may be considered a way of modernizing and rationalizing entrepreneurs' commercial management and decisions.

The adoption of a formal system of environmental management (EMAS) is also recognised as a powerful commitment to environmentally sustainable operations and in recent years the sensitivity of fish farms towards the environment, especially trout farmers, has increased.

Seafood product certification is somewhat limited, especially when compared with other agro-food sectors. However, starting from 2000 there has been an increase in the quality branding of seafood products pursuant to Ministerial Decree of 18 July 2000 by the

Italian Ministry for Agricultural Policies regarding the inclusion of fish products among traditional agro-food products. The number of labeled fish product totals 139 in 18 Italian regions. Also the PDO and PGI brands and organic product certification are receiving greater recognition. There are others 7 seafood products undergoing European and Italian scrutiny for possible protected origin certification. Numerous traditional Italian fish product are likely candidates for this kind of labelling.

3.3 Certification of the fish products system in Italy

Accredited schemes (ISO, UNI and EMAS)

The number of Italian fishery and fish farming companies applying accredited schemes is quite small, although it has tended to increase since 2000 when only one processing company was certified. Currently some 19 fish farms are certified under ISO 9001 regulations (9 of which operating in fresh water, 9 in sea water, and 1 installation marketing shell fish), 16 under ISO14001 norms and 5 companies under EMAS (2007) norms.

The platform for the application of the EMAS system to aquaculture companies have been developed by the National Environmental Protection Agency (ANPA) and the Central Institute for Scientific and Technological Research Applied to the Sea (ICRAM) in the manual "Guidelines for the Application of EMAS Regulations to the Fish Farming Sector" (ANPA/ICRAM, 2002). The guidelines were developed from the results of a national project for the application of EMAS to different aquaculture production systems. The project has a twofold direction: to improve farm management in relation to environmental issues and to assist the legislator in order to approve new rules permitting fair trade and appropriate incentives. In addition, the project aims to establish a territorial network, capable of disseminating the EMAS Rule within the fish farming sector.

The EMAS Rule was applied to three fish farms producing sea bass (*Sparus aurata*) and sea bream (*Dicentrarchus labrax*), of which two utilise intensive technology and the other is an offshore system. The guideline develop and disseminate the conceptual framework of EMAS and provide a set of practical tools for the application of EMAS to the Italian aquaculture together with the analysis of improving profits and the competitive position of the registered farm.

An important initiative is the national project "Implementation and certification of a seafood chain traceability" launched in 2007 and aimed at setting up a certified system for seafood products identified by a collective trademark. The project is promoted by the "Organizzazione Interprofessionale Filiera Ittica" recognized by the European Union and supported by the Ministry of Agricultural Policies. The project involves 10 producer organizations from four regions - Friuli Venezia Giulia, Veneto, Emilia Romagna and the Marche. Its main objective is to develop a traceability system under UNI 10939:2001 regulation. By means of the new collective trademark "Filiera Ittica" the aim is to raise awareness among the operators in the seafood chain – from the fishermen to the supermarkets and restaurants – in order to guarantee the freshness and food safety of the product for the final customer.

Project action is focused on products characterized by low added value products as well as those that lend themselves in particular to traceability: mussels *Mytilus galloprovincialis*, clams *Tapes spp.*, Italian clam *Callista chione*, *Pecten jacobaeus*, cuttlefish *Sepia officinalis*, sole *Solea vulgaris*, slipper lobster, *Scyllarides latus*, Norway lobster *Nephrops norvegicus*, squid *Loligo vulgaris*; tub gurnard *Trigla lucerna*, European pilchard *Sardina pilchardus*, European anchovy *Engraulis encrasicolus*,..

In the sector of the processing and marketing of fish products, 69 companies are ISO 9001 certified, 14 ISO 14001 certified and 1 EMAS certified.

With reference to the certification of the traceability pursuant to UNI 10939/2001 regulations, a consortium of fishery cooperatives recently obtained certification for the production of two bivalve mollusc species.

3.4 Product certification

PDO, PGI labels for seafood product

In Italy only one seafood product has currently been awarded the PDO label (Tab. 15). This is the tench *Tinca gobba dorata del Pianalto di Poirino* registered as Reg. EC 160 of 21/2/08 published in GUCE L48 of 22/2/08.

Another product, denominated *Acciughe sotto sale del Mar Ligure*, is at the European preliminary scrutiny stage and the application for recognition of the PGI labels was published in the GUCE C279 Gazette of 22/11/07. At the expiry of the 6 month period running from that date the product will be registered and will obtain brand recognition. Two fish products from Trentino Alto Adige, denominated Trout and Char of Trentino, have passed the national preliminary scrutiny for PDO labelling and are at the stage of submission to Brussels. A further 4 products, 2 shell fish and 2 finfish are at the national preliminary scrutiny stage.

Traditional seafood products

Overall 139 products have been declared traditional Italian products and included in the “Seventh revision of the national list of traditional agrofood products”, issued by the General Direction for the Quality of Agrofood Products of the Ministry of Agricultural, Food and Forestry Policies included in the Decree of 19 June 2007 (Tab. 16). These products are included under the heading “preparation of fish and shellfish and special farming techniques”, although any system of regulatory control is envisaged for these products. This recognition and labeling, however, may prove useful for producers’ organization in order to define production regulations and to carry out specific controls. Therefore, these products could potentially pursue PDO or PGI certification

Arca del gusto and Slow Food presidia to defend seafood products

The seafood products and seafood preserves recognized in the Slow Food projects are 21, with specific food characteristics to be protected (Tab. 17)

Tab. 15. PDO and PGI labels for Italian seafood products.

Product name	Protection system	Category	Region	Preliminary scrutiny stage
Tinca gobba dorata del Pianalto di Poirino	PDO	tench	Piemonte	Registered as Reg EC 160 of 21/2/08
Acciughe sotto sale del Mar Ligure	PGI	anchovy	Liguria	Application accepted and published in GUCE
Trote del trentino	PDO	trout	Trentino Alto Adige	National preliminary scrutiny approved, submitted to Brussels
Salmerino del Trentino	PDO	char	Trentino Alto Adige	National preliminary scrutiny approved, submitted to Brussels
Trota reatina	PGI	trout	Lazio	National preliminary scrutiny
Vongola di Goro	PGI	clam	Emilia Romagna	National preliminary scrutiny
Sardina di Lampara del Golfo di Trieste	PGI	pilchard	Friuli Venezia Giulia	National preliminary scrutiny
Cozza di Scardovari	PDO	mussel	Veneto	National preliminary scrutiny

Sources: Ministry of Agricultural, Food and Forestry Policies – General Direction for Agrofood Development, Quality and Consumer Protection

Tab. 16 Traditional seafood products in Italy

Seafood products included in the “Seventh revised national list of traditional agrofood products” (MIPAF 2007)	
ABRUZZO (1)	71 trota fario
1 scapece	72 vongola commune
CALABRIA (21)	PIEMONTE (4)
2 acciughe marinate	73 lampré (lampreda)
3 acciughe salate	74 prodotti ittici in carpione
4 aguglie, costardelle fritte	75 tinca dorata del pianalto di poirino
5 alici salate	76 trota salmonata affumicata
6 alici salate e pepate	PUGLIA (8)
7 alici sott'olio	77 alici marinate
8 bottarga di tonno	78 cozze piccine allu riènu, cuzzeddhre allu riènu
9 frittelle di neonata, cicirella, frittelle di nannata	79 cozza tarantina, cozza gnure
10 involtini di pesce spada	80 monacelle, munaceddhre'mpannate,
11 involtini di spatola, 'nvoltini i spatula	munaceddhri'mpannati, monaceddhi 'mpannati,
12 pesce sciabola, vela, spatola	uddratieddhri, cozze munaceddhre alla ginuvese
13 pesce spada alla ghiotta, pisci spada a gghiotta	81 polpo alla pignatta, purpu a pignatta
14 pesce spada arrosto con il sarmoriglio, pisci	82 scapece gallipolina
15 rosamarina	83 scapece di lesina
16 sarde salate	84 zuppa di pesce alla gallipotana, suppa alla caddhripulina
17 sarde salate e pepate	SARDEGNA (13)
18 sardella salata di crotone	85 bottarga di muggine, bottariga di muggine
19 stocafisso, stocco alla ghiotta	86 belu, trippa di tonno
20 stocco di mammola	87 bottarga di tonno, bottariga di tonno, buttariga
21 tonno sott'olio, pesantono sott'olio	buttariga de tonnu, buttarla de scampirru
22 tortiera di alici	88 burrida alla casteddaia, burrida alla cagliaritana
CAMPANIA (6)	89 cuore, cuore di tonno
23 acciughe sotto sale	90 figatello, lattume
24 alicette piccanti	91 merca di muggine
25 alici di menaica	92 molluschi bivalvi vivi del golfo di oristano
26 alici marinate	93 musciame di tonno - filetto di tonno
27 colatura di alici di cetara	94 spinella
28 filetti di alici sott'olio	95 tonno affumicato
EMILIA-ROMAGNA (2)	96 tonno sott'olio
29 acquadelle marinate	97 tunningia
30 anguilla marinata di comacchio	SICILIA (5)
FRIULI-VENEZIA GIULIA (13)	98 bottarga, uovo di tonno
31 calamaro di saccaleva	99 bottarga, uovo di tonno di capo san vito, uovo
32 canocia de nassa, canocchia di nassa	Santovituro
33 dondolo, tartufo di mare	100 pesce azzurro sott'olio di lampedusa
34 matàn, aquila di mare, pesce colombo	101 tonno di tonnara

35 mormora di miramare	102 vaccareddi (lumache)
36 mussolo de scoio, mussolo di scoglio, arca di noè	TOSCANA (10)
37 passera coi ovi, passera con le uova	103 anguilla scavecciata, anguilla marinata
38 pedocio de trieste, cozza di trieste	104 anguilla sfumata
39 pesce di valle	105 bottarga di cefalo di orbetello, bottarga di muggine
40 sardoni in savor	106 femminelle di orbetello o burano
41 sardoni salati	107 fiche maschie a stocchetto
42 sievoli soto sal	108 filetto di cefalo di orbetello
43 trota affumicata di san daniele	109 palamita
LAZIO (6)	110 trota fario appenninica del casentino, trota reale
44 alici marinate *	111 trota marinata della garfagnana
45 alici sotto sale del golfo di gaeta	112 trota iridea
46 calamita del lago di fondi *	UMBRIA (6)
47 anguilla del lago di bolsena	113 anguilla del trasimeno
48 coregone del lago di bolsena	114 carpa del trasimeno
49 lattarino del lago di bracciano *	115 latterino del trasimeno
LIGURIA (8)	116 luccio del trasimeno
50 acciuga sotto sale del mar ligure	117 persico reale del trasimeno
51 acciuga, acciuga di monterosso	118 tinca del trasimeno
52 cicierello di noli	VENETO (19)
53 gamberetti	119 anguilla del delta del po
54 mitili (muscoli, del golfo di la spezia)	120 anguilla del livenza
55 mosciamme del mar ligure (musciàmme)	121 anguilla marinata del delta del po
56 tonnidi del golfo paradiso	122 anguilla o bisatto delle valli da pesca venete
57 zerlo di noli	123 branzino o spigola delle valli da pesca venete
LOMBARDIA (4)	124 cefali delle valli da pesca venete
58 alborelle essiccate in salamoia	125 cefalo del polesine
59 coregone	126 cozza di scardovari
60 missoltini	127 gambero di fiume della venezia oriental
61 pigo	128 latterini marinati del delta del po
MARCHE (1)	129 moeche e masanete
62 filetti di trota affumicati	130 moscardino di caorle
MOLISE (10)	131 pesce azzurro del delta del po
63 baccalà e cavolfiore arracanato	132 sardine e alici marinate del delta del po
64 cannolicchio	133 schilla della laguana di venezia
65 gattuccio (a cagnole)	134 trota fario valli vicentine
66 polpo essiccato (pulepe sicche)	135 trota iridea del sile
67 razza quattr'occhi (u cchialine)	136 trota iridea della valle del chiampo
68 scapece	137 vongola verace del polesine
69 torpedine marezzata (a martiscene)	PROVINCIA AUTONOMA DI TRENTO (2)
70 trigliette essiccate (trejezzole secche)	138 sisam
	139 trota trentina (sia allevamento che prodotto lavorato)
*new products	

Tab. 17. Seafood products and seafood preserves included in the Slow Food projects

Slow Food (updated to September 2007)				
	Product name	Region	Typology	Project
1	Anguilla di Lesina	Puglia	seafood product	Arca/presidio
2	Arselle di Marceddì	Sardegna	seafood product	Arca
3	Cicciarelli di Noli	Liguria	seafood product	Arca/presidio
4	Crocetta di Ancona	Marche	seafood product	Arca
5	Gamberetto di nassa	Campania	seafood product	Arca/presidio
6	Masculina da magghia	Sicilia	seafood product	Arca/presidio
7	Moleche	Veneto	seafood product	Arca/presidio
8	Palamita del Mare di Toscana	Toscana	seafood product	Arca/presidio
9	Pezzogna	Campania	seafood product	Arca
10	Tinca gobba dorata del Pianalto di Poirino	Piemonte	seafood product	Arca/presidio
11	Acciughe di Monterosso	Liguria	seafood preserve	Arca/presidio
12	Anguilla marinata tradizionale di Comacchio	Emilia Romagna	seafood preserve	Arca
13	Bottarga di Orbetello	Toscana	seafood preserve	Arca
14	Alici di menaica	Campania	seafood preserve	Arca/presidio
15	Bottarga di Favignana	Sicilia	seafood preserve	Arca
16	Mosciolo selvatico di Portonovo	Marche	seafood product	Arca/presidio
17	Salmerino del Corno alle Scale	Emilia Romagna	seafood product	Presidio
18	Bottarga di Muggine di Cabras	Sardegna	seafood preserve	Arca
19	Colatura di alici di Cetara tradizionale	Campania	seafood preserve	Arca
20	Merca	Sardegna	seafood preserve	Arca
21	Pisci affumau	Sardegna	seafood preserve	Arca

Eco-labels

In Italy, the international eco-labels referring to seafood product include the “Friend of the Sea” label. Currently **7 fish farms** have obtained this label for the production of sea bass, sea bream, trout and caviar (Tab. 18). These products are on sale at Carrefour Italy and Coop Italy.

Friend of the Sea approved aquaculture farms do not impact critical habitats; use feeds from trimmings or from Friend of the Sea approved fisheries; do not use GMO, chemicals, antifouling paints; they apply measures to eliminate fish escapes and the capture of other marine animals and seabirds; they limit and properly manage emissions.

Tab. 18. Italian seafood products certified and fish farming approved by Friend of the Sea

Product	Company certified	Super and Hyper Markets
Caviar <i>Acipenser spp</i>	Agroittica Lombarda S.p.A.	Carrefour Coop
Sea bass <i>Dicentrarchus labrax</i>	Acquazzurra S.p.A. Medifsh S.p.A. Panittica Pugliese S.p.A. Spezzina Itticoltura S.r.l.	Carrefour Coop
Gilthead sea bream <i>Sparus aurata</i>	Acquazzurra S.p.A. Medfish S.p.A. (Panittica Pugliese S.p.A. Spezzina Itticoltura S.r.l.	Carrefour Coop
Rainbow trout <i>Oncorhynchus mykiss</i>	Eredi Rossi Silvio Società Agricola Sterpo S.p.A.	Coop

Organic aquaculture

In Italy there are still no national regulations governing organic aquaculture. However, several parliamentary bills were presented in 2006-2007 regarding the “Regulation of organic fish farming”. The approval of national regulations will allow Italy to comply with the invitation of the European Commission for the member states to make provision for national regulations until specific EU regulations are issued for this sector.

The first initiatives regarding organic aquaculture in Italy date to 2001. The first in-depth multidisciplinary study of organic aquaculture was promoted by the UNIPROM Consortium with the principal aim of providing farmers with a regulatory framework containing procedures to be validated at the productive stage.

The experiment on “organic aquaculture” was developed by adapting EEC Reg. 1804/99 on organic farming to aquaculture and applying the principles of the FAO Code of Conduct for Responsible Fisheries (Unimar, 2001). The experimental protocol takes into consideration all the principal regulations governing organic fish farming, from water quality, to feed, fish density, preventive health and hygiene measures. The protocol was tested in 4 different types of rearing models (cages, earth pools, concrete tanks, PVC tanks). The fish species farmed were sea bass and sea bream. The project took account of cost estimates, market prospects and demand analysis.

The cost of the organic rearing of sea bass (7.77 euro/kg) and sea bream (6.52- 7.54 euro/kg) was found to be 20-30% higher on average compared with conventional farming. The economic advantage of the conversion to organic fish farming of existing conventional farms would be ensured only if the market could absorb the more costly productions; for sea bream the cost difference amounts to about 2 euro/kg and for sea bass 2.66 euro/kg. Some 43% of the consumers interviewed were willing to pay on average up to 2.25 euro/kg more (Defrancesco, 2003).

In 2002, the Italian Fish Farmers Association and the Veneto Region launched a organic fish farming pilot project (SFOP 2000-2006) with the principal aim of defining techniques of use in organic trout farming. The proposed regulations are divided into 7 chapters: general principles of organic fish farming and the species to which they apply, company's environmental management system, conversion, animal origin, feeding, prophylaxis and veterinary treatments, farm management methods. On the basis of the data communicated at the FAO Conference (FAO, 2005), organic farm output in Italy reached 320 tons of trout in 2003.

Current organic farming output, although quite small, also includes marine fish. In Italy only two companies have started up organic fish production: the Nautilus Cooperative at Vibo Valentia and the Blu Valley in Veneto (ISMEA, 2007).

The Nautilus Cooperative of Vibo Valentia in 2003 set up a mariculture installation for the organic production of sea bass and sea bream according to the AIAB protocol, which is recognized by the IFOAM at the international level. Nautilus' production process is certified by the ICEA. The mariculture farm is composed of 14 open sea cages and has a productive cycle of 18-30 months; it has a productive capacity of 130 tons per year, with an output of 100-110 tons per year.

The Blue Valley company runs an extensive farm in the Venetian lagoon, in particular in the protected area of Caposile. Product certification is provided by ICEA. The area of lagoon water dedicated to organic production totals one thousand hectares. Annual output amounts to around 100 tons of sea bream (60%), sea bass (20%), eels and mullet (20%).

Four private bodies have drawn up rules governing the certification of organic aquaculture productions: Associazione Italiana Agricoltura Biologica (AIAB), QC&I International Services (QC&I), Società di certificazione (SoCert), Istituto di Certificazione Etica ed Ambientale (ICEA).

In Italy, organic aquaculture currently seems to be affected by several weaknesses that could slow down its development; these include high costs due to delays in reconversion and certification, low market penetration and inadequate market information and analysis.

The various initiatives started with the aim of promoting and supporting organic aquaculture, including the European "BioIFish project" which involves the Puglia Region, AIAB, ICEA, Croatia and Albania. The aim of the project, is to promote oil and fish produced with organic methods in this part of the Mediterranean.

Collective, regional and company trademarks

Numerous collective trademarks have been created in Italy, to guarantee quality and traceability of seafood products , such as the "Prodotto Ittico Italiano", "Gabbiano Blu", "Pesce Fresco di Qualità", "Pesce Fresco della Versilia", "Prodotto Certificato dell'Alto Adriatico" (PCAA), "Itticus pesce Veneto" and "Scirocco 36".

The collective trademark "*Prodotto Ittico Italiano*" of Federcoopesca is a national label into which flows the entire catch made by the Federcoopesca cooperatives. This allows traceability and adds value to the fishery products (<http://www.federcoopesca.it>).

The "*Gabbiano blu*" brand, promoted by AGCI AGRITAL for the promotion and upgrading of the fishery product of the member cooperatives joining AGCI (<http://www.agciagricital.agenziaittica.coop>).

The "*Pesce Fresco della Versilia*" brand guarantees the origin and quality of the fishery products caught around Viareggio area (Toscana), which is off-loaded and sold directly at the Viareggio Fish Market (<http://www.itticoviareggio.it>).

The brand "Itticus pesce Veneto" originated in the ITTICUS project is promoted by the Venice Chamber of Commerce. The aim of the project is to promote the entire production and processing chain and the distribution channels (<http://www.asap.ve.it/index.html>) for domestic consumption and restaurant

The collective mark "*Pesce fresco di Qualità*" was created by Consorzio Pesca Ancona, a commercial company owned and run by the "Pescatori e Motopescherecci cooperatives" of Ancona (Marche) and is sold in local super and hyper markets. The mark guarantee the control of health and hygiene conditions by local health authorities, the processing on board of the fishing vessels, the certification of origin, the traceability via the identification of each fish box marked with the boat's reference code, which is retained until the product is sold. The brand also indicated the name of the fish, the fishing area, the method and the date of capture (<http://www.qualita.legapesca.it>).

The brand "*Prodotto Certificato dell'Alto Adriatico*" (PCAA) was created as part of the ADRI.FISH project for the purpose of certifying a system for the production of fish products captures, farmed, gathered and packaged in the Upper Adriatic area. The production rules governing the PCAA brand involve the principal fish, crustacean and shell fish species in the Upper Adriatic. The Italian partners involved in the project are the Veneti, Friuli Venezia Giulia and Emilia Romagna Regions, together with Federcoopesca (<http://www.altoadriatico.com/>).

The "*Scirocco 36*" consortium represents the collective trademark of the fish product chain of the Marche which includes the fishermen, fish markets, wholesalers, retailers and restaurant owners. The company comprises 26 partners, while 91 subjects subscribe to the brand, including 70 fishermen, 4 fish markets – Ancona, Civitanova Marche, Fano and Pesaro -, 5 wholesalers, 6 fish shops and 6 restaurants. The consortium has adopted the "Filiere Ittica" production rules within the framework of the regional collective trademark "QM - Qualità garantita dalle Marche".

The rules govern all the stages of the chain, from capture to product marketing and apply to a total of 32 fish, shellfish and crustaceans species. Using a computer based traceability system, the brand guarantees the complete traceability of the marketed or consumed product. The accompanying docket contains not only the information required by existing laws but also an identifying alphanumeric code which, when entered into the appropriate box on the web page www.qualimarche.it, allows the consumer to trace the fish's history (<http://www.scirocco36.it/>).

Many initiatives were promoted at regional level since 2001 for the development of regional brands and the promotion of Italian seafood products, Most of them were funded with European and national funds whint the SFOP 2000-2006.

In the Adriatic Region, an initiative was promoted by fish and shellfish farmers for the valorization of aquaculture products, from certification, to distribution and marketing (Associazione Mediterranea Acquacolturi, AMA)

An initiative was promoted by the European Union/Adriatic Region in the framework of SFOP 2000-2006. It is named "Occhio al marchio - La strada del Pesce" and is aimed at promotion of Adriatic fish species consumption along the coast of Emilia-Romagna.

Collective trademarks for fish products were created in Sicily by four provinces "Golfo di Castellammare" (Trapani), "Portopalo di Capo Passero" (Siracusa), "Consorzio di ripopolamento ittico del Golfo di Catania" and "Golfo di Patti" (Messina). The creation of these quality labels was funded by regional fundings within the "Poseidon" project (Sicilian Region 2000-2006 ROP). The project is aimed at boosting the regional fisheries economy by providing a free instrument to fishery companies for enhancing their competitiveness, and at the same time satisfying the growing interest for quality expressed by consumers. By means of a reference code, the batch of fish can be identified and the traceability of the product can be ascertained, from capture to processing and marketing. The quality label certification includes specific production rules that ensure good security and hygiene practices are observed on board the vessel and after landing, the place of capture, the date of capture, the name of the species and processing. The next steps will set up centers for product concentration and quality certification, as well as a network of fish analysis laboratories (<http://www.ct.camcom.it/Marchio-di-qualita-pesca.html>).

Some other Italian regions having established a collective trademark Tuscany has launched a programme to qualify integrated fish farming productions, by laying down ad hoc production rules compliant with the provisions of Regional Law 25/99 establishing the regional label of quality "*Agriqualità*" which identifies and promotes agrofood produced by integrated agricultural techniques. The production rules lay down the general principles to be followed for integrated aquaculture productions: environmental friendly farming techniques, also ensuring animal welfare, and high quality aquaculture products. Ad hoc technical provisions cover both the farming phase and the subsequent phases of transport, transformation and marketing (<http://agriqualita.arsia.toscana.it/pagebase.asp?p=383>).

In Tuscany also a Company label has been created for aquaculture product - the "*Pesce di Orbetello*" brand of the Cooperativa Produttori Acquacoltura Maremmani CO.P.A.M., comprising 5 companies. The species produced are sea bass, sea bream and meagre (*Argyrosomus regius*), farmed in accordance with voluntary production rules providing strict criteria governing the choice of feed and health and hygiene controls to prevent disease. COPAM has also developed a processing sector within the farms, in which aquaculture products are filleted, smoked and packaged (http://www.mareinitaly.it/intervista_v.php?id=58).

The Emilia Romagna region, pursuant to regional law L.R. 28/1999, has undertaken a programme to promote the production of aquaculture fish and shellfish production by means of integrated production rules aimed at assigning a collective regional quality label "*QC - Qualità controllata*".

(http://www.regione.emiliaromagna.it/wcm/ERMES/Canali/impres/pesca/pesca_marittima.htm).

Likewise, also the project titled "*Qualità per i Prodotti Ittici della Sardegna*" is under way, co-funded by the European Union as part of the 2000-2006 Sardinian POR project aimed at devising production rules for fish products from Sardinia as well as a regional label to guarantee their quality. The project focuses on Mugilidae and Bivalve and high value crustaceans, including lobsters and prawns, sea bass and sea bream caught in the wild and/or extensively reared in coastal ponds and lagoons (<http://www.itticodiqualitya.it/index.php?act=contobiett>).

Seafood standards by LDG and Fish producers

The large scale distribution (GDO) plays a fundamental role in offering products having certified guarantees of quality and food safety. The standards used by the LSD for seafood products take into consideration not only food security aspects common to all products but also several specific factors such as the feeds used, control of the farm environment and in particular of the water, the monitoring of the animals' state of health by means of laboratory analyses, product traceability and that of the raw materials used throughout the product chain. Furthermore, some super- and hyper-markets have opted to characterize their own product even further by promoting certain coherent aspects by means of a brand policy of their own.

Aquaculture Certification Council (ACC) is a certification body of the Global Aquaculture Alliance (GAA). The founders and the board members of GAA and ACC are predominantly seafood and shrimp aquaculture industry representatives. GAA sets the "Best Aquaculture Practices" standards which address social, environmental and food safety of shrimp aquaculture. ACC certify the shrimp hatchery, farm and the processor based on the GAA standards. As a mean of a vertically integrated approach, "three star label" can be granted, when the products are from an ACC certified hatchery, farm and processor.

Certification by COOP Italia, bans the use of GMOs, colorants and antibiotics and growth accelerators. It also gives priority to animal welfare, by monitoring the space available to the fish and tank crowding and focuses special attention on the environmental aspects regarding both the resources used in the farming (water, feed and proteins with given microbiological characteristics and free of any contaminants) and the possible release of polluting substances into the environment (e.g. residues of any drugs used, correct waste water management, etc.). One peculiar and characteristic aspect of the COOP standards for farmed fish refers to the nutritional aspects, in particular to fat content and composition.

The CARREFOUR – Carrefour is the first retailer in Europe and second largest in the world. Carrefour-GS group has implemented a well-defined policy of strongly characterizing "Filiere Qualità Carrefour" (Carrefour Quality Line, CQL) aims to develop food products that are safe from farm to table and complying with international food safety standards. In defining the product chain rules particular attention is focused on

the choice of fish farms which must satisfy specific characteristics as regards the quality of water, the management of the environmental impact of the farm itself and waste management. Other important aspects refer to the time elapsing after the suspension of any medical treatments.

Other LSD chains, such as AUCHAN, CONAD, ESSELUNGA, PAM, BENNET, etc., include proper management of the environmental impact of the farms, animal welfare and control of the phases downstream from the farm, including in the first instance transport.

In addition to the experiences illustrated above concerning the most important distribution chains, one other significant experience is worth mentioning at the national level – that of the Italian Fish Farmers Association (A.P.I.) – which has drawn up “*The guidelines and technical specifications for the product certification of farmed trout*” and

“*The guidelines and technical specifications for the product certification of farmed sea bass and sea bream*”. These two sets of production rules set out the principal aspects involved in managing the production (farm health management, best farming practices, product identification and traceability, control system). On the basis of their definitions, the production rules establish the characteristics and values of certain specific requirement forming the object of the certification issued by an Accreditation Body, SINCERT, at the behest of API. For 2008 a Code of Conduct and an API label of quality are expected to be issued for fresh and sea water fish farm products.

In the following table (Tab. 19) are summarized the seafood certified companies, processes and products in Italy.

Tab. 19. Seafood certified companies, processes and products in Italy (2006).

Category	Product name	Certification scheme	Cettification name, entity and details
Cultured fish	<i>Tina tinca</i> denominata "Tinca gobba dorata del Pianalto di Poirino"	PDO	Registered Reg. CE 160 21/2/08 GUCE L48 22/2/08
Mollusc Bivalves	<i>Tapes decussates</i> <i>Mytilus galloprovincialis</i>	a) Food Chain Traceability certification b) collective trademark	a) Food Chain Traceability certification UNI 10939/2001 b) Prodotto Certificato dell'Alto Adriatico Consorzio Cooperative Pescatori del Polesine O.P. Scardovari (RO)
Seafood products	139 products termed as "Preparation of fish and shellfish products"	Traditional products	Prodotti agroalimentari tradizionali DM 18 luglio 2000 MIPAF
Caviar, sea bass, seabream, rainbow trout from aquaculture	<i>Acipenser spp</i> <i>Dicentrarchus labrax</i> <i>Sparus aurata</i> <i>Oncorhynchus mykiss</i>	Eco-labels	Friend of the Sea Cultured fish produced by approved aquaculture farms
Sea bass, seabream, eel, mullets from aquaculture	<i>Dicentrarchus labrax</i> , <i>Sparus aurata</i> , <i>Anguilla anguilla</i> , <i>Mugilidae spp</i>	Organic	Organic fish Aziende Nautilus and Blue Valley AIAB Standard and certified by ICEA
Fishery products	Fish and shellfish of the Federcoopescas Association	Collective trademark Food Chain Traceability	Prodotto Ittico Italiano Federcoopescas
Fishery products	Fish and shellfish of the AGCI AGRITAL Association	Collective trademark Food Chain Traceability	Gabbiano blu AGCI AGRITAL
Fishery products	Fish and shellfish from Central Tyrrhenian Sea (Versilia)	Collective trademark Food Chain Traceability	Pesce Fresco della Versilia Mercato Ittico di Viareggio
Fishery products	Fish and shellfish from Central Adriatic Sea (Marche)	Collective trademark Food Chain Traceability	Pesce fresco di Qualità Consorzio Pesca Ancona
Fishery products	Fish and shellfish from North Adriatic Sea	Collective trademark Food Chain Traceability	Prodotto Certificato dell'Alto Adriatico (project) Veneto, Friuli Venezia Giulia, Emilia Romagna, Istria (Croazia), Izola (Slovenia), Federcoopescas.
Fishery products	Fish and shellfish from North and	Collective trademark	Filiera Ittica (project)

	Central Adriatic Sea	Food Chain Traceability	Organizzazione Interprofessionale Filiera Ittica
Fishery products	Fish and shellfish from Central Adriatic Sea (Marche)	Collective trademark Food Chain Traceability	Scirocco 36
Aquaculture products	<i>Dicentrarchus labrax</i> and <i>Sparus aurata</i>	Regional brand	Agriqualità- Toscana L.R. 25/1999
Fishery and aquaculture products	Fish and shellfish from “integrated Fishery and aquaculture”	Regional brand	Qualità controllata- Emilia Romagna L.R. 28/1999
Fishery products	Fish and shellfish from Central Adriatic Sea (Marche)	Regional brand	Qualità garantita delle Marche L.R. n.23 del 10/12/2003
Sea bass-seabream from aquaculture	<i>Dicentrarchus labrax</i> and <i>Sparus aurata</i>	Company label	Pesce di Orbetello Coop. Produttori Acquacoltura Maremmani

4. Proposal for application of certification schemes to semi-intensive and extensive aquaculture: Italian case study

Water quality and habitat and species conservation are challenges currently facing all industries and the aquaculture industry in particular is also under constant scrutiny by public opinion, government and conservationists. The link between aquaculture and species protection, biodiversity, habitat and ecosystems is fully recognized by different actors, who increasingly identify the quality of aquaculture products with the quality of the environment where the fish are grown. Extensive and semintensive aquaculture systems in Italy (vallicoltura, pond and saltworks management in coastal areas) do not represent solely a different way of fish production but are already smoothly integrated into the ecosystem and socio-economic environment, contributing to the maintenance of wetlands and the functioning of coastal areas. The involvement of these extensive and semintensive production system in the certification process regarding the aquaculture sector may thus contribute to ameliorating the sustainability and image of national and European aquaculture.

According to the SEACASE inventory of extensive and semintensive aquaculture productions, in Italy there are approximately 110 fish companies/cooperatives using extensive and semintensive technologies for fish farming in coastal areas. They are all located in coastal lagoons and cover a total area of about 42000 ha for production purposes. Although in terms of production, extensive and semintensive fish farms account for only 12% of aquaculture fish production, they have a strategic environmental value, contributing to the conservation and restoration of wetlands and lagoon areas and enhancing the aesthetic and patrimonial appeal of landscapes. It is also widely recognized that these activities provide an important ecosystem and environmental service, such as the maintenance of aquatic habitats and the conservation of aquatic and birds biodiversity. Fish ponds and *valli* also act as natural nutrient filters and waste water treatment systems, improving water quality and enhancing bioremediation. They also play an important role of providing employment in coastal and rural areas, in the preservation of local traditions and also provide services for recreational fisheries and tourism (bird watching, hunting, water related leisure activities, Varadi, 2007).

Several voluntary certification schemes are applicable to extensive and semintensive aquaculture systems for enhancing compliance with relevant national and European standards and for certifying the sustainability of these productions. However, if the components of different certification schemes are examined, two voluntary certification schemes apparently possess the most suitable requisites for application to extensive and semi-intensive systems:

- European Union Eco-Management and Audit Scheme (EMAS)
- Organic farming (IFOAM)

The application to the EMAS voluntary scheme actively involve farmers in protecting the environment and improve the transparency of their productive process, proving their

strategic role in enhancing natural resources management. Both factors may give aquaculture farms a competitive edge in the market competition, increasing consumer fidelity and the public image of extensive aquaculture products.

When implemented, EMAS standards ensure consistency in environmental management, help to manage environmental risks (i.e. low water oxygen, contaminants from continental freshwater) and enable the most efficient and cost-effective environmental measures to be introduced. Furthermore, EMAS makes compliance with environmental regulations and establishes compliance as a consideration to be made at the beginning of process development. It thus helps to manage environmental legal compliance and performance requirements.

Relevant issues included in the EMAS regulation are:

- Assessment, control and reduction of the impact of the activity
- Energy management, savings and choice
- Waste avoidance, recycling, reuse, transportation and disposal
- Evaluation, control and reduction of noise within and outside the site
- Staff information and training on environmental issues
- External information on environmental issues

The application of EMAS standards to semi-intensive and extensive aquaculture takes place in the following steps:

1. *environmental review*: an initial comprehensive analysis of the environmental issues, impact and performance related to farming activities;
2. *planning an environmental management system*: the part of the overall management system which includes the organisational structure, responsibilities, practices, procedures, processes and resources for determining and implementing the environmental policy;
3. *adoption of the environmental management system*: support to the farm during the adoption of the system; experimental application of the procedures for increasing operating efficiency and improving environmental performance, employee training; support in choosing the accredited environmental verifier;
4. *environmental statement*: drafting of the environmental statement;
5. *audit cycle*: planned and documented verification of environmental management system conformity both to the firm and to the EMAS Rule;
6. *verification*: support during the verification of the accredited environmental verifier.

The EMAS registered company may have both internal and external advantages:

a) Internal advantages:

- *efficiency*: a systematic approach can help to management leads indirectly to improved environmental performance, improved cost control and minimized of trade barriers;
- *incidents and liability*: a systematic approach to managing environmental issues can help to ensure that environmental incidents and liability are reduced;

- pro-active approach: EMAS Rule sensitises the internal culture in organizations to environmental matters and promote a voluntary consensus standards approach to environmental improvement.

b) External advantages:

- market improvement: customers may demand their suppliers to meet specific environmental standards and having EMAS registration to ensure the goals are being met;
- public image: site registration will improve investor confidence

The principles for organic aquaculture are basically the same organic for terrestrial livestock and aims at the developing of sustainable aquaculture production methods that protect the environment and ecosystems (Olesen, 2008) Looking at the main components of organic aquaculture certification scheme (IFOAM), seem to be quite evident that basic “philosophy“ of organic farming is not so far from the principles of good management practices traditionally used for extensive and semintensive productions.

Main constraints in the conversion of non organic to organic production were identified for intensive and hyper intensive aquaculture system, *inter alia*: high stocking density, environmental and ecological impacts on wild population, confinements affecting animal welfare in terms of allowing the animal a natural life, disease treatment, organic feed and feed additives Many of these basic principles seem to be hardly to overcome and are delaying the process of organic certification of intensive aquaculture systems. Conversely, compliance with organic farming certification schemes seems more easily for extensive and semi-intensive fish productions.

In the table 20 the main criteria included in the Environmental management scheme are analysed as they regard extensive and semintensive aquaculture systems.

Table 20. Comparative analysis for the application of Environmental Management Schemes (EMAS) to intensive, semintensive and extensive fish and shellfish productions system in coastal areas.

Indicators for EMS certification	Intensive sea based systems	Intensive land based systems	Extensive systems	Semintensive systems	Extensive shellfish
	sea bass, sea bream,	sea bass, sea bream, eels	sea bass, sea bream, mullets, eels	sea bass, sea bream, mullets, eels	mussels, clams
Antibiotic Use	M	H	NA	L	NA
Benthic Biodiversity	M	L	NA	L	M
Chemical Use	M	H	NA	L	NA
Cleaning agents, fuels & lubricants	M	M	L	L	L
Disease Transfer	H	M	L	L	L
Escapees	H	M	L	L	
Energy efficiency	M	H	L	L	L
Source of energy	M	H	L	L	L
Fish meal/oil Use	H	H	NA	L	NA
Habitat Impacts	M	M	NA	L	L
Mortality Removal	H	M	L	L	L
Predator Control	H	M	H	M	M
Navigation/light**	M	NA	NA	NA	M
Noise	L	M	L	L	L
Odour	M	M	L	L	L
Visual impacts	M	M	NA	L	L
Source of Seeds	L	L/H*	L/H*	L/H*	L
User Conflicts	M	M	L	L	M
Waste management	M	M	L	L	L
Water Use/Pollution	L	M	L	L	L

Indicators were set up from ANPA-ICRAM study (2001) and the Benchmarking Study Certification Programmes for Aquaculture (WWF, 2007)

Expected impact: L=Low; M=Medium; H=High; NA=Not Applicable * for eel seed

5. Prospects in Italy

Certification is recognised as a strategic tool for qualifying national fishery products and productions practices and products from aquaculture companies in the next three years (National Programme for Fishery and Aquaculture, 2007-2009).

As far as fishery products are concerned, the certification of the traceability system is the most widely represented one, following by eco labels. Many collective, regional and corporate brands have been registered in the last five years to certify the quality and traceability of fishery products.

Seafood certification in Italy is rather limited if compared with other agricultural and food sectors. The typicality and the traditional features of Italian fish products is, however, superior than in other European countries. 143 products in all, that come under the heading “preparation of fish, shellfish and crustaceans and specific rearing techniques”, were declared traditional products. The certification of origin for fish products is also setting in, and products are being guaranteed the PDO and PGI marks. Only one product has been assigned the PDO mark and other 7 products are at the instruction phase for receiving the mark.

The number of certified aquaculture companies is quite limited but the number of plants that are being assigned the environmental certification schemes, such as UN ISO14100 and EMAS is rapidly growing. Most of companies involved in extensive and semi-intensive aquaculture production did not apply for certification, even if they should be easily accredited for ISO, EMAS and organic certification

The results of the EU survey on certification of aquaculture products (2007) indicate that the most attracting quality certification schemes are provided by organic production, environmentally-friendly production and other schemes based on best environmental management practices. Organic aquaculture is raising interest in Italy as well but the certification process is affected by several weaknesses that could slow down its development; these include delays in reconversion and certification, low market penetration and inadequate market information and analysis. Productions are still very limited.

Large scale retails, such COOP, CARREFOUR, and other LDS chains are setting voluntary certification schemes and standards in collaboration with producers and processors. Their role is expected to increase more and more in the near future.

There is an increasing concern for the costs of organic and other certification systems, which often might be too high for most types of aquaculture production (shellfish, extensive productions) and for small companies. In Italy some incentives have been considered by the Government within the Fishery Operative Programme 2007-2013 (CCI: 2007IT14FPO001) in accordance with the Council Regulation (CE) n. 1198/2006 (art. 30) to economically support the conversion and certification of aquaculture national companies in the next five years.

Moreover, the Italian Association of Fish Producers (API) is setting a new Code and a certification scheme for fish production, which will provide accepted norms for national aquaculture production and will serve as a guidance for national aquaculture companies.

A common certification policy, involving the Ministry of Agriculture responsible for organic farming certification and the Ministry of the Environment responsible for EMAS and other EMS certification, together with the Regions, is still lacking. An attempt to introduce state-mediated certification procedures to assure consumers that Italian aquaculture products are safe to consume and farmed in respect to the environment regulations should be considered to respond to consumer perceptions and market requirements.

6. General Conclusions

The recently new FAO guidelines for aquaculture certification recognised certification as a tool for improving transparency, minimising potential negative impacts and increasing societal and consumer benefits and confidence in the process of aquaculture production and marketing (FAO, 2007). In brief, credible certification schemes are recognised as the means for reassuring consumers, buyers and retailers on the sustainability of aquaculture production systems, practices, processes and products.

In Europe first attempts towards certification were initiated by the aquaculture sector itself, with the major role played by the private industry sector and European Organization of Fish Producers (FEAP). Driven by concerns on food safety, environmental and social sustainability of aquaculture production, the private sector has made significant advances in the management of farming systems for the reduction of environmental impacts and for improving efficiency and profitability. The use of “better management practices”(BMPs) was promoted in the Code of Conduct at European Fish producers (2000) as a tool for increasing public and consumer confidence in aquaculture production, practices and products. The implementation of the Code of Conduct at European Fish producers is expected in 2008, however, it was anticipated (Hough, 2008) that it will contribute to the development of certification procedures to certify that aquaculture products are safe to consume and production practices are non-polluting, non-disease transmitting and/or non-ecologically threatening and in accordance with environmental standards.

According to FEAP (Hough, 2008) certification scheme for aquaculture sector should be partially developed from existing EMAS or ISO 14001 and GlobalGAP, and used reproducible and measurable standards. The results of CONSENSUS and IUCN-FEAP projects also form an important cognitive basis, which was formulated and shared by different stakeholders, and could provide valuable indicators for application within such a scheme (Ojeda, 2007).

There is a growing concern to ensure that sustainability becomes a normal practice in the European aquaculture sector, in term of environment, social contribution and economic success (Lane, 2008). The challenge to set up new schemes and standards

to certify the “sustainability” of aquaculture sector was discussed at the final stakeholder meeting of the Consensus project (Consensus, 2008). Final conclusions are:

1) it is shareable that certification schemes must ensure economic viability, societal equity and acceptable environmental impact of aquaculture practices but aquaculture is the most efficient and sustainable type of livestock production and is not less sustainable than other agriculture practices (Ojeda, 2008) and do not need a specific “certification of sustainability”

2) the possibility to certify the sustainability of aquaculture practices, as requested by some state agencies and conservationists, seems to be a distant goal, and it would actually require the elaboration of new certification systems alongside with the existing available methods.

More appropriately, sustainability will be considered as the guiding principle for aquaculture certification scheme than a new certification scheme itself.

Particular note must be given to the issue on organic farming which is raising expectations and opening new perspectives. The final issues arising from the recent IFOAM Conference on Organic Aquaculture (2008) highlighted that organic aquaculture is getting more and more important and that, similarly to other organic products, the market potential for organic seafood seems to be promising in Europe (Olesen et al., 2008). Reliable statistics on organic aquaculture, however, are need to confirm the first evidence of increased market demand for organic products.

According to Cataudella (2008), from the environmental point of view, the development of organic aquaculture is to be considered as an opportunity to make aquaculture activities more eco-compatible. It would also allow to improve the quality of products, the health of consumers and the animals’ well-being. In addition, the definition of organic aquaculture schemes for might be an excellent opportunity for improving the producers/consumers relationship and to overcome the conflictual relationship between fish companies and environment (Cataudella, 2008).

The sustainability of organic aquaculture feeds is a key issue largely debated within the organic movement (Bridson, 2008). Low availability of organic-compatible feed ingredients represents the main constraint for future development of organic aquaculture certification. Ongoing innovative R&D activities on alternative feed ingredients is a mean to overcome this problem (Dias and Conceicao, 2008; Brindson, 2008). Many issues however are still to be faced especially with regard to the possibility/suitability of certifying as “organic” the production of carnivorous species (such as salmon and trout). Another issue involves the possible ecologic and sanitary impacts of these farming systems in coastal areas, even when they are certified as organic. Conversely, there is a considerable potential for organic certification of fish and shellfish extensive and semintensive production systems which could convert relatively easily to organic farming.

Additional knowledge and research on organic aquaculture are necessary, as prerequisites for further development and harmonization of certification schemes and standards.

The certification systems by large scale retailers (CARREFOUR, AUCHAN, CONAD, COOP) and private sector bodies (such GlobalGAP), originally developed for other zootechnical productions and successively transferred to fishery and aquaculture, are arousing interest in Europe, as well as in Italy.

The basic principles of these new certification systems are i) integrity of Certification process (ISO, EN), ii) consultation and communication to stakeholder; iii) open access to all producers, iii) mutual recognition on a transparent basis with producers and processors, iv) Specific requirements for: a) Food safety standards, b) environmental protection, c) health and welfare, d) safety and traceability and e) social equity (Edwards, 2008).

The certification schemes are developed in association with suppliers and processors – and provide a platform for business-to-business certification, ensuring compliance with minimum legality, food safety and elementary CSR principles to protect retail brands.

The assets of these certification systems are different from other aquaculture certification systems for: the availability of raw materials on the global market; the retail format and the opportunity to offer products in supermarket and hypermarket at reasonable prices; a retail merchandising strategy to meet the consumers demand and a good ratio between quality and prices. The market strength of these retails can make all the difference in the near future, incorporating many of the existing certification systems.

The growth of a wide range of certification schemes and accreditation bodies is creating confusion amongst consumers (Trigueros, 2008; Rémy 2008) and producers (Ojeda, 2008). Several surveys conducted in southern and northern European countries by Consumer Associations (EUROCONSUMER, BEUC) demonstrated that the Consumer want to be basically guaranteed on: food quality, food safety and environmental impact of aquaculture. Consumers get very easily confused with the proliferation of labels in the market and the overlapping of different brands for fish products might be counterproductive. A more efficient strategy could be the promotion of a single brand and its dissemination to consumers.

As far as aquaculture producers are concerned, the profusion of certification schemes has resulted in high costs for aquaculture companies without significant price benefits at market level. This is of particular importance for small-scale producers which express an increasing concern about the costs of certification schemes. According to FAO (2007) the equivalence between different schemes needs to be further exploited for reducing compliance costs that may be required for certification on different markets.

The general principles and objectives are almost the same in the different aquaculture certification schemes:

- The promotion and consumption of high quality and safety aquaculture products produced by means of responsible techniques.
- The application of certification to different stages of the product cycle 1) production systems, 2) supply chain and 3) post-harvest processing.
- A spontaneous, participatory and transparent adherence

- The possible adherence of most plants
- The compliance with national and international rules and conventions
- The promotion of the adopted certification system

The main objective today is to address the differences in the voluntary certification schemes currently in use in Europe, in order to recognise the equivalences of different certification schemes and harmonise the standards between different organisations on the basis of scientific knowledge.

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