



FAO TCP/RER/3301(D)

Sustainable Development of the Aquaculture Sector from a Postharvest  
Perspective with a Focus on Quality, Traceability and Safety

# GHP, HACCP and quality management schemes

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# General food hygiene requirements and HACCP

According Regulation EC 852/2004 on hygiene of foodstuffs,  
**ANY FOOD BUSINESS OPERATORS SHALL ADOPT THE FOLLOWING HYGIENE MEASURES:**

1. Adopt procedures necessary to achieve targets of the Regulation laid down in;
  - o Annex I General hygiene measures for the primary production;
  - o Annex II General hygiene measures for all other stages of food chain;
2. Develop procedures according the HACCP principles
3. Comply with the temperature control requirements for foodstuffs;
4. Comply with microbiological criteria for foodstuffs;
5. Maintain of the cold chain;
6. Provide for product sampling and analysis.

**All food establishments of a food business operator shall be notified to relevant local competent authorities.**



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# Examples of hygiene measures

## WATER SUPPLY

1. Provide drinking water as a food ingredient or for cleaning purposes in sufficient quantity.
2. Conduct a hazard analysis of water supply and determine the control measures (treatment) necessary for product safety, especially if the water is drawn from mains supply.
3. Conduct the regular testing of microbiological and chemical quality of water, steam, ice in place of use.
4. Prevent any contamination of food or food contact material with non-drinking water if used for any purposes.
5. Establish procedures for use of recycled water if appropriate.



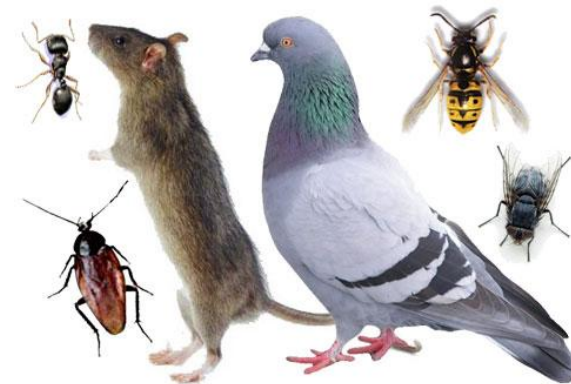
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# Examples of hygiene measures



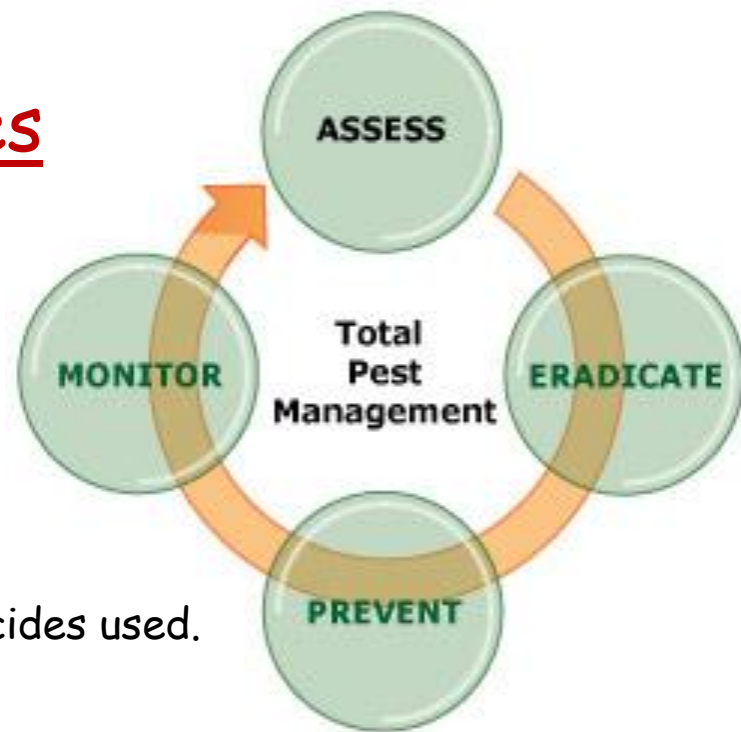
## PEST CONTROL (1)

1. Nominate a competent person responsible for the pest control programme or contract a competent pest control organization.
2. The site shall be fully maintained to minimize pest infestation (rodents, birds, insects).
3. Draw the site bait plan for relevant pest.
4. Locate the baits, fly killer devices or pheromones in secure appropriate places with no risk of product contamination.
5. Establish regular inspection and/or treatment plan to deter and eradicate infestations. Follow it and record the results of inspections.

# Examples of hygiene measures

## PEST CONTROL (2)

6. Inspect the incoming material for pest infestation.
7. Maintain the Material Safety Data Sheets of pesticides used.
8. Nominate a person to whom the staff shall report an incident or pest infestation.
9. In the event of pest infestation, immediate action shall be taken to eliminate the hazard. Action shall be taken to identify, evaluate and authorize the release of any product potentially affected. Take a record of the actions taken.
10. Review the results of pest monitoring and the pest control programme.



# Examples of hygiene measures

## PERSONEL HYGIENE (1)

1. Requirements relating to personnel hygiene in raw materials handling, preparation, processing, packaging and storage areas shall be documented:

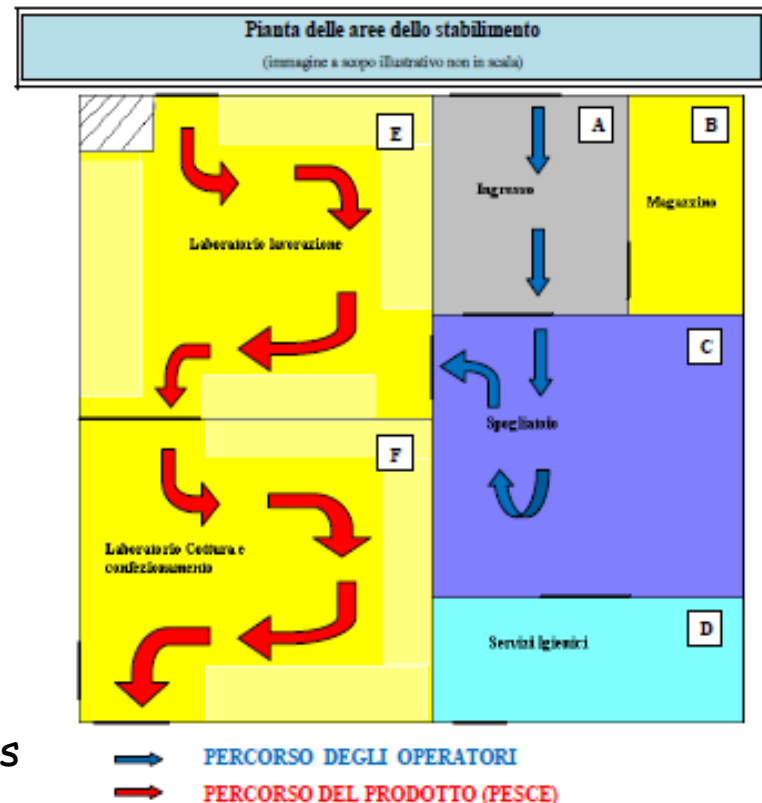
- Hand washing and disinfection policy;
- Eating and drinking policy;
- Smoking policy;
- actions to be taken in case of cuts or grazes on exposed skin;
- Fingernail and jewellery policy;
- Hair and beards covers policy;
- Protective clothes policy;
- Medical screening procedures;
- Notification procedures of relevant transmissible infections



# Examples of hygiene measures

## PERSONEL HYGIENE (2)

2. Establish a plan of site to define access points for personnel, walking routes and staff facilities.
3. Provide adequate protective clothes in sufficient numbers for all staff, potential visitors, subcontractors and temporary employees.
4. Ensure regular laundering of all protective clothes and/or guidelines for it and its inspection.
5. Provide adequate and suitably placed facilities in sufficient quantities for hand hygiene
6. Provide adequate personnel facilities: changing rooms, toilets, hand washing facilities, facilities for personal belongings storage, and facilities for eating, drinking and smoking.



# Examples of hygiene measures

## PERSONEL HYGIENE (3)

7. Plan and perform food hygiene trainings for all personnel entering food handling areas (including temporary employees) appropriate to their role in the food safety management system. Document the training programme and maintain training and/or competence records. The personnel shall be trained prior to commencing work and also refreshing trainings shall be provided.

8. Personnel shall be adequately supervised during work. Regular inspections of personnel hygiene shall be provided.



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# Examples of hygiene measures

## TRANSPORT



1. Document the requirements on transport regarding:

- Temperature control and temperature record
- Cleaning procedures and the relevant records,
- Rules for use the vehicles for other foodstuffs or materials and relevant cleaning procedures before use for food transport;
- Segregation needed to avoid cross contamination;
- Vehicle pre-loading and unloading inspections;
- Hygienic design of bulk transport vehicles;
- Product protection during loading and unloading;



2. Maintain records of objective evidence of the characteristics of the vehicle insulation and capacity of the cooling equipment, if appropriate (**ATP certificates**).

3. Where the company employs third party contractors, the responsibility of a contractor for food safety shall be clearly defined in the contract.



# To-do-list for food business operators

## 1. DEFINE THE SCOPE OF YOUR FOOD BUSINESS

- Make a list of all types of product or product group you produce.
- Make a list of the activities you perform.
- Identify all establishments (locality) where you perform any food activity, e.g. sites, external storage facilities, sales automats, etc.





# To-do-list for food business operators

## 2. NOMINATE THE PERSONS RESPONSIBLE FOR THE IMPLEMENTATION OF FOOD LAW AT YOUR COMPANY

- Assemble an HACCP team.
- Define the required competence of the team members (qualification, work experience, training, and skills).
- Provide relevant training in the HACCP principles and their application.





# To-do-list for food business operators

## 3. IDENTIFY THE APPLICABLE LEGISLATION REQUIREMENTS

- Study the general food hygiene regulation (852/2004) and if you produce or use products of animal origin, study also the Regulation 853/2004,
- Identify which requirements of the Annexes are applicable to your business,
- Identify if there are national or EC guidelines of good practice or Codex Alimentarius codes of practice,
- Identify the composition requirements if you produce products for a special dietary use.



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# To-do-list for food business operators

## **4. VERIFY THE LEVEL OF IMPLEMENTATION FOOD HYGIENE REQUIREMENTS AT YOUR COMPANY**

Conduct an onsite hygiene audit according to relevant food hygiene regulations.

## **5. NOTIFY ALL OF YOUR ESTABLISHMENTS TO THE RELEVANT COMPETENT AUTHORITY OR APPLY FOR REGISTRATION OR APPROVAL OF YOUR ESTABLISHMENTS**

- Each food business establishment (site) shall be notified to the competent authority in the region where it is placed.
- The establishments where the products of animal origin are produced and/or handled shall be registered or go through an official approval process conducted by the competent authority. See the guide document to Regulation 853/2004.



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# To-do-list for food business operators

## 6. IDENTIFY THE APPLICABLE MICROBIAL CRITERIA

- Study the Regulation 2073/2004 on microbial criteria for foodstuff and the relevant national legislation. You shall apply microbial criteria if any of your products or processes is identified in the legislation.
- Draw a plan of microbial testing, if applicable.
- Identify the need of shelf life testing and/or conducting a microbial study if applicable.





# To-do-list for food business operators

## 7. CONDUCT AN HAZARD ANALYSIS COVERING ALL OF YOUR PRODUCTS AND ACTIVITIES

- Describe the end products and all inputs of the production.
- Identify the intended use of your products.
- Identify the potential cases of unsafe products and raw materials.
- Draw flow chart for each product or product group.
- Analyze each step of the process for biological, chemical and physical food safety hazards. Assess the risk resulting from each hazard.
- Draw a list of relevant hazards.
- Identify the control measures applicable to prevent, eliminate or minimize the relevant hazards.
- Identify the hazards and control measures under your control and hazards and control measures which are under control of your suppliers or customers.



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# To-do-list for food business operators

## 8. DEVELOP A PLAN OF APPLICABLE CONTROL MEASURES CCPs, HYGIENE CONTROL MEASURES

For example:

- the cold chain requirements;
- temperature control criteria;
- water quality demands;
- transport and storage conditions;
- internal and external environment hygiene requirements;
- checks on receiving of raw materials;
- personnel hygiene requirements;
- infrastructure needed;
- pest control needed;



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# To-do-list for food business operators

## 9. ESTABLISH DOCUMENTATION AND RECORDKEEPING

- Define the form and the extent of your documentation.
- Write specifications for finished products, raw materials, intermediate products, semi-processed products, and packaging.
- Write procedures and work instructions for the personnel.
- Develop record sheets to record data monitored.
- Establish rules for authorization, alterations (corrections) of records and the way of their authorization and justification.
- Establish the period of retention of the records according the shelf life of the product or other requirements.



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# To-do-list for food business operators

## 10. ESTABLISH INTERNAL STANDARDS, RULES AND/OR PROCEDURES FOR THE DETERMINED CONTROL MEASURES

For example:

- Raw material supplier approval and monitoring procedure;
- Equipment cleaning and sanitation programme;
- Housekeeping and sanitation programme for rooms where the food is produced, handled or stored;
- Personnel hygiene rules;
- Pest control programme;
- Breakable items control procedures;
- Measures to prevent microbial, chemical and physical cross contamination.



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# To-do-list for food business operators

**11. IDENTIFY THE ALLERGEN RISK OF YOUR PRODUCTS AND IF APPROPRIATE, IMPLEMENT RELEVANT CONTROL MEASURES**

**12. IDENTIFY THE GMO RISK OF YOUR PRODUCTS AND IF APPROPRIATE, IMPLEMENT RELEVANT CONTROL MEASURES**

**13. IDENTIFY THE FOOD SAFETY HAZARDS ORIGINATING FROM WRAPPING OF YOUR PRODUCTS AND MATERIALS COMING INTO DIRECT OR INDIRECT CONTACT WITH THE IN-PROCESS MATERIALS. DETERMINE RELEVANT CONTROL MEASURES.**

**14. IDENTIFY THE FOOD SAFETY HAZARDS ORIGINATING FROM FOOD ADDITIVES AND PROCESS AIDS USED IN YOUR PRODUCTS. DETERMINE RELEVANT CONTROL MEASURES.**



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# To-do-list for food business operators

## 15. DETERMINE THE PLAN OF PRODUCT ANALYSES

- Determine the frequency and scope of microbial testing and contaminant testing.
- Determine the frequency and method of incoming material, intermediate product and/or product analyses - the physico-chemical characteristics significant for food safety.
- Establish corrective action procedures for the case of non conforming or unsafe product:
  - reporting responsibilities;
  - identification of non-conforming or unsafe product;
  - security measures for non-conforming product;
  - product release procedures and responsibilities;
- Determine the methods of analysis to be used for product inspections.
- Determine the measurement devices, their sensitivity and accuracy needed and/or used for the monitoring of the processes or products.



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# To-do-list for food business operators

## 16. ESTABLISH A TRACEABILITY SYSTEM

- Identify documents needed to prove the supplier and origin of raw materials.
- Identify the documents needed to prove the next food business person to which are your products delivered.
- Establish the system of internal traceability - coding, data on the product label or in accompanying documents of the consignment.
- Verify your traceability system:
  - 1) Downstream traceability
  - 2) Upstream traceability



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# To-do-list for food business operators

## 17. IMPLEMENT ALL YOUR CONTROL MEASURES

- Review all your implemented and planned control measures
- Validate and/or actualize them if necessary.
- Instruct and train all of your staff about their impact on the food safety
- Instruct all visitor or subcontractors when entering the food handling area.





# To-do-list for food business operators

## 18. VALIDATE YOUR FOOD SAFETY MANAGEMENT SYSTEM

Let your system work for a few days and then verify that all measures are:

- implemented,
- implemented correctly and/or effectively,
- suitable to control the relevant hazards,
- compliant with the food safety requirements.





# To-do-list for food business operators

## 19. ESTABLISH A CRISIS PLAN FOR A CASE IF NON-CONFORMING PRODUCT OR PRODUCT INJURIOUS FOR HEALTH MAY REACH THE CONSUMER

- Assemble a crisis management team. Allocate the competency and responsibility of team members.
- Identify relevant potential incidents.
- Make a list of contact persons of your customers, suppliers, competent authorities and relevant media to be informed in the case of an incident.
- Write down a procedure which should be followed in the case of such an incident.
- Train and verify the procedure.



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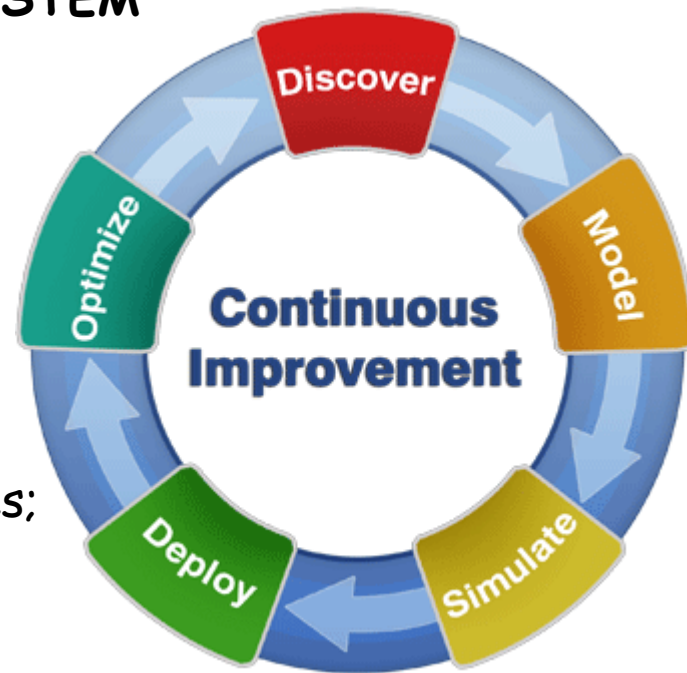


# To-do-list for food business operators

## 20. TAKE MEASURES FOR MAINTENANCE AND CONTINUAL IMPROVEMENT OF YOUR FOOD SAFETY MANAGEMENT SYSTEM

For example

- HACCP verification procedures;
- hygiene checks;
- internal and/or third party audits;
- reporting and management review procedures;
- periodic training programs;
- job descriptions;
- HACCP analysis and validation in the case of product and/or process modifications.





## QUALITY SCHEMES FOR EUROPEAN SEABASS AND GILTHEAD SEABREAM



There are two ways to study the quality schemes applied to European seabass and gilthead seabream production among the aquaculture sector in the Mediterranean countries:

at the **PRODUCER** level and at the **DISTRIBUTION** one.



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## AT THE PRODUCER LEVEL...

Quality schemes are increasingly being adopted by the aquaculture sector on a country basis.

Indeed, the ISO 9000 standard is gradually being widely adopted by producers to tackle quality management issues.

This type of certification is still voluntary and thus its level of implementation still brings a lot of questions



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## AT THE PRODUCER LEVEL...

### ...in SPAIN



Spain encourages better environmental practices in aquaculture farms by granting a significant reduction in the tax on concessions of public domain waters to aquaculture companies that implement officially recognized environmental management certification schemes such as the Eco-Management and Audit Scheme (EMAS) or ISO 14000. This law was passed in 2007 and provides discounts of up to forty percent (40 percent) on this expensive levy for aquaculture farms, improving their environmental performance through EMAS or ISO 14000.



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## AT THE PRODUCER LEVEL...

### ...in GREECE



The **AGROCERT** scheme was certainly an important step for addressing the challenges of quality certification and labelling. However, mainly due to financial problems, very few companies applied for a certification under this scheme. In any case, the overall effect and contribution of this scheme remains questionable considering that this quality certification system was never adequately communicated and promoted to the main buyers of Greek aquaculture products: wholesalers, retailers and final consumers in Italy, Spain, France and other European countries. The cost of certification under the **AGROCERT** scheme has been estimated at about €0.80/kg, a cost which under the current conditions is "forbidding" for most, if not all companies, especially as the effects of this certification remain questionable.



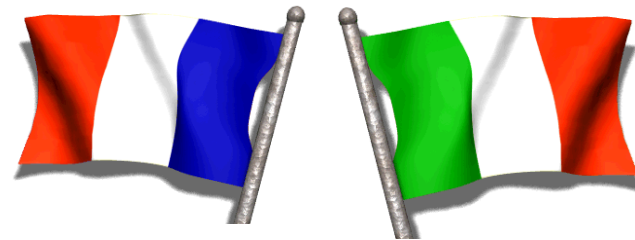
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## AT THE DISTRIBUTION LEVEL...



Aside from the quality schemes implemented at the producer level, the packaging, processing and distribution are some of the steps covered by some specific quality schemes.

This is the case for **retail store** own-labels which cover the certification of quality standards and traceability systems for European seabass and gilthead seabream, such as in **Italy** and **France** with Carrefour, Metro, GS, Coop, Esselunga, and Auchan.



## QUALITY SCHEMES FOR EUROPEAN SEABASS AND GILTHEAD SEABREAM



There are several additional issues which have to be considered, as the Consensus project highlighted, when considering a quality scheme for European seabass and gilthead seabream such as:

- the applicability of indicators implemented at sectorial or farm level, taking into consideration that the production's percentage covered by quality could be relatively easy but its application could be challenging from a cost implication perspective;
- the absence of quality criteria within the national legislations;
- the definition of a trans-national minimum standard for quality schemes to ensure the indicator's validity;
- the improvement of information technology systems for product traceability and documentation, based upon the existing organization of most producers.




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*Thanks! Hvala!*



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