



# Organic Aquaculture: a strategy for valorisation of semi-intensive aquaculture ?

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**Changes on feeding pattern**

**Higher consumption of fish**

**More informed consumer**

**Food quality and safety**

**Environmental sustainability**

**Preference for organic food**

# Organic aquaculture

*Organic production is an overall system of farm management and food production that combines best environmental practices, a high level of biodiversity, the preservation of natural resources, the application of high animal welfare standards and a production method in line with the preference of certain consumers for products produced using natural substances and processes.*

Council Regulation (EC) No 834/2007 – Organic production and labeling of organic products

# EPPO AS A PRACTICAL EXAMPLE



**semi intensive**

**10 earthen ponds**

**2500 m<sup>3</sup>**

**1.5 – 2 kg/m<sup>3</sup>**



**Regulation (EC)710/2009  
& 834/2007**

**organic production**

# Suitability of aquatic medium and sustainable management plan



Fish farm location in areas not subject to contamination 

Unit production may be split up into clearly separated non-organic and organic aquaculture production:

*natural situation  
distances  
tidal flow*

*separate water distribution systems  
upstream and the downstream location of organic unit*

# Suitability of aquatic medium and sustainable management plan



✓ > 20 Ton /year by the production unit and operator needs to provide an environmental assessment (Council Directive 85/337/EEC).

✓ Production units must have settlement ponds, biological filters or mechanical filters to collect waste nutrients to improve the effluent quality.

# Origin of juveniles – On growing

**Semi intensive:** hatchery reared



## *Organic origin*

- Certification of fish origin
- Species selected with with lower impact on wild stocks

## Organic

### *Non-organic origin*

- Animals entering by a natural influx
- If more than 2/3 of the production cycle are managed under organic management:

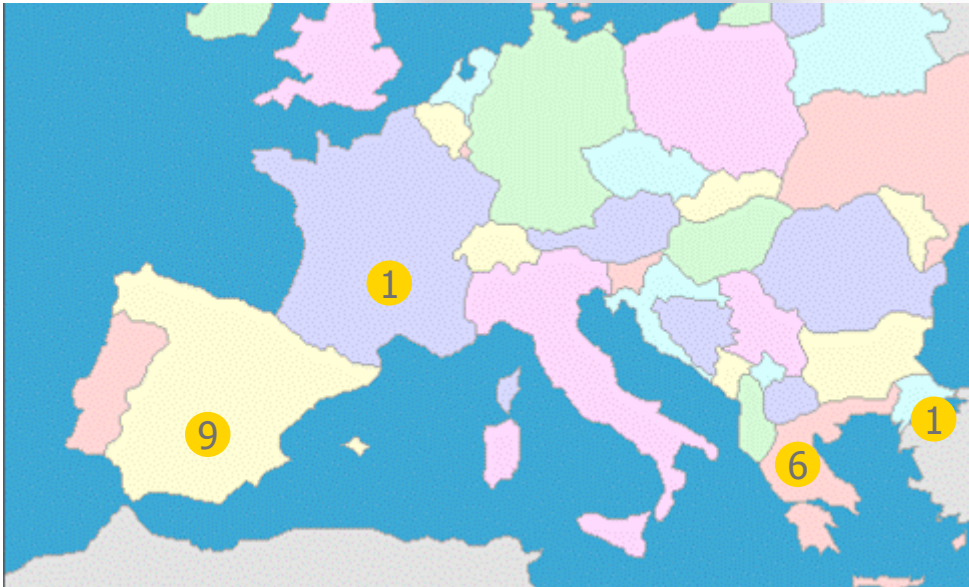
*80 % 31 December 2011*

*50 % 31 December 2013*

*0 % 31 December 2015*

# Origin of juveniles – On growing

Hatcheries contacted



eel



sea bream



meagre



sea bass



mullet



# General aquaculture husbandry rules



- ✓ Aquaculture management procedures regarding animal welfare
- ✓ Water of good quality with parameters within levels adequate to species
- ✓ Natural photoperiod and environmental temperature
- ✓ maximum density of 4 kg / m<sup>3</sup>

# Specific rules for aquatic containment systems



- ✓ Earthen ponds having a water flow that safeguard the animals' health and welfare, minimizing escape
- ✓ Monitor and control the flow rate and water quality of both in-flowing and out-flowing water
- ✓  $\geq 5$  percent of the perimeter with natural vegetation

# Management of aquaculture animals



- Minimize handling of aquaculture animals to ensure fish welfare
- Aeration allowed considering animal welfare and health
- Oxygen is only permitted for uses related to animal health requirements

# Management of aquaculture animals



- Slaughter techniques that render fish immediately unconscious and insensible to pain.
- Differences in harvesting sizes, species, and production sites must be taken into account when considering optimal slaughtering methods.

# Nutrition and Feeds



Feeds must be design according to species nutritional requirements, in order to produce healthy animals, but simultaneously regarding the high quality of final product and a low environmental impact

*Producer need to obtain organically certified feeds*



Fish meal from sustainable fisheries (Reg CE 2371/2002)

Fish meal and fish oil from organic aquaculture trimmings

Fish meal and fish oil from trimmings of fish used for human consumption

Prohibition on the use of GMO

# Nutrition and Feeds

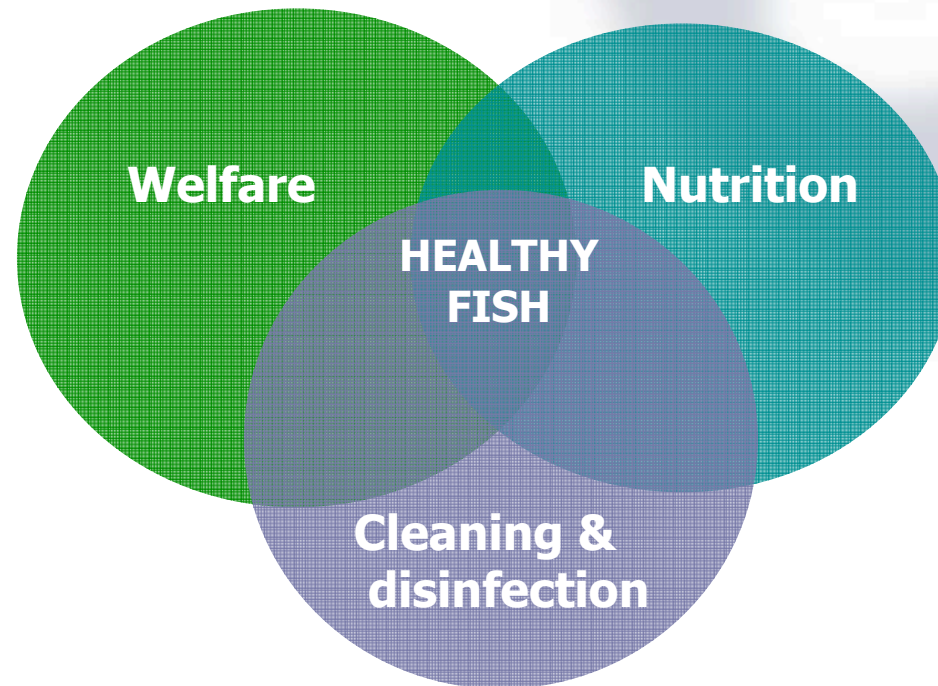


- Non-organic aquaculture trimmings may be used for a transitional period until 31 December 2014.
- Such feed material shall not exceed 30 % of the daily ration.
- Feed ration may comprise a maximum of 60 % organic plant products.

**35 to 45% more expensive**

# Disease, Prevention and Treatment

Animal health management plan detailing bio security and disease prevention practices (Article 9 of Directive 2006/88/EC)



# Veterinary treatments



1<sup>o</sup> - homeopathic treatments, plant extracts, authorized probiotics, immunostimulants, trace elements, metals, etc.

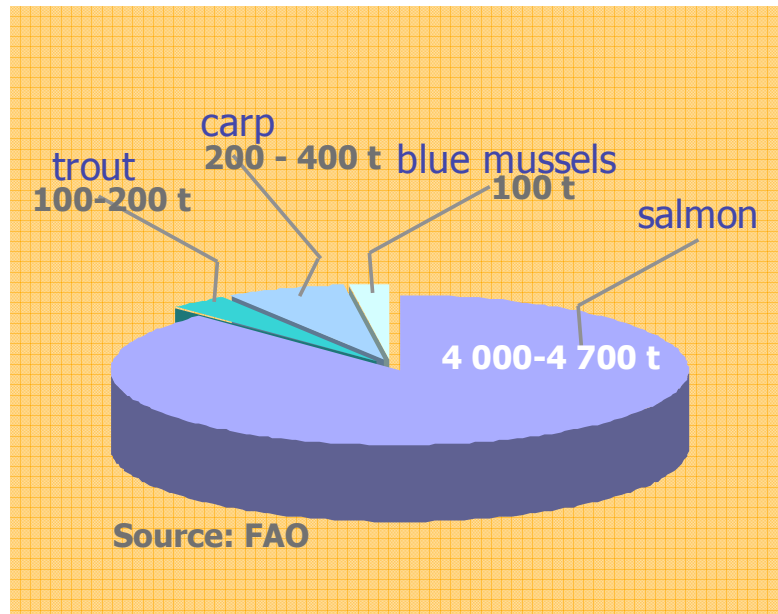
2<sup>o</sup> - allopathic treatments might be prescribed, 2 times a year or just 1 if production cycle is < 1 year.

Parasites treatments limited to 2 times year, or just 1 if production cycle is < 18 months



# Organic production

Organic aquaculture production is increasing worldwide



Estimated 5 000 ton in 2000 (FAO),  
from which 80% was salmon



60 000 ton in 2007  
2008 prevision of 15-25 % growth  
Represent only 0.1% of total production

Source: Organic monitor; <http://www.nofima.no/marin/en/forskningssomrade/organic-aquaculture>

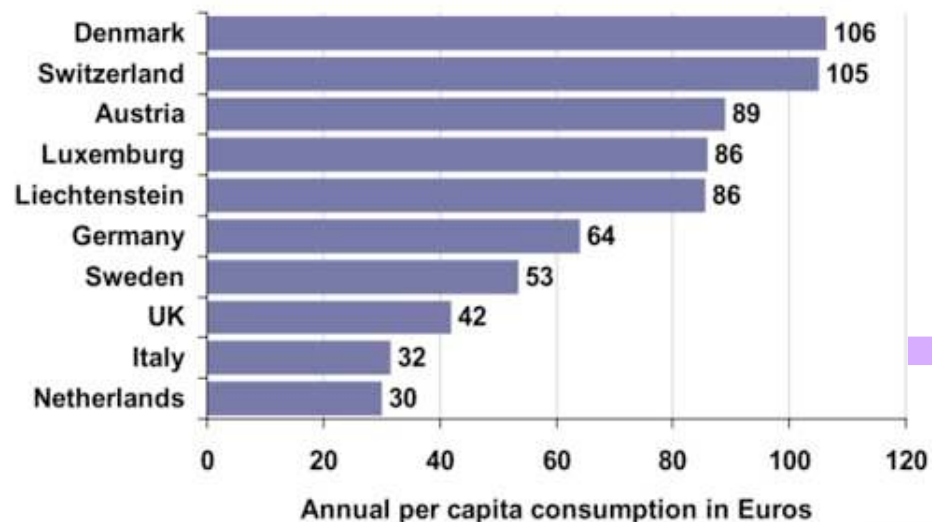
# Market for organic products

Organic seafood products is a growing market

but

## EUROPE

Countries with the highest per capita consumption 2007  
of organic agriculture products



Organic market is a small niche where one is prepared to pay a premium of an extra 30-40%.

A similar consumer profile is expected for organic seafood.

Source: [www.worldoforganic.net](http://www.worldoforganic.net), Aberystwyth University, FiBL, ZMP

# Market for organic products

Organic marine fish species?



Organic salmon and shrimp are better mainstreamed in Europe than carp.



Problems for retailers in dealing with fresh fish in Germany, maybe when it will be commercialized processed.

Photos provided by Diogo Thomaz

(Stefan Bergleiter from Naturland, pers com)

Is organic a potential strategy for valorisation of semi-intensive products?

Yes...but maybe not immediately

Higher cost involved with feeds (35-40%), more labor, certification process (1500-2000 euros), origin of organic juveniles, higher risks of diseases, scarce information of the benefits

*Challenges:*

Feeds / shortage of organic feed

Supply of organic juveniles

To promote and enhance fish health

Differentiation between organic and non-organic products

**Thank you for your attention!**



