

Mugil cephalus





Rocio Robles

Marketing options for processed farmed grey mullet

Grey mullet in DIVERSIFY research areas

- **Reproduction:** improved vitellogenesis and spermatogenesis (recombinant hormone rFSH)
- **Nutrition:** improvement of larval performance (DHA/EPA/Ara, effective DHA-aurine diet, ...), nutritional needs to improve weaning and cost-effective production...
- **Grow out:** cost-benefit of weaning diets, feeding improved diet on F1 monoculture and on wild fingerlings (different densities and different culture systems)



Socioeconomic Area: WP 24.2 List of ideas for new product development

Table 9: Each species' technical compatibility, including positive and negative features, for every product group concept; the species that can be used for realizing each product concept are given on a best fitted rank.

Product	Species	Positive features	Negative features	Suggested species(best fitted): rank
Fish fillets steamed or in olive oil (ideas 33, 35)	<i>grey mullet</i>			1. meagre, amberjack, wreckfish 2. grey mullet, nanout, pikeperch
	<i>meagre</i>	Fast grower (better yields)		
	<i>amberjack</i>	Fast grower (better yields)		
	<i>wreckfish</i>	Fast grower (better yields)		
	<i>halibut</i>			
	<i>pikeperch</i>			
Thin smoked fillets (idea 2)	<i>grey mullet</i>	high fat	-	1. amberjack, grey mullet 2. meagre, wreckfish, , 3. halibut, pikeperch
	<i>meagre</i>	Fast grower (better yields)	-	
	<i>amberjack</i>	High fat Fast grower (better yields)	-	
	<i>wreckfish</i>	Fast grower (better yields)	-	
	<i>halibut</i>	-	-	
	<i>pikeperch</i>	-	-	
fresh fillet products without further processing (ideas 14, 20, 21, 29, 37, 40, 43)	<i>grey mullet</i>	-	Small commercial sizes - yields	1. meagre, wreckfish, amberjack 2. halibut, pikeperch 3. grey mullet
	<i>meagre</i>	Fast grower (better yields)	-	
	<i>amberjack</i>	Fast grower (better yields)	-	
	<i>wreckfish</i>	Fast grower (better yields)	-	
	<i>halibut</i>	-	-	
	<i>pikeperch</i>	-	-	



WP 28 New product development

41 ideas for new product development of value added products.

12 ideas selected for checking **production feasibility and microbiological control.**

3 ideas for grey mullet:
1) **fresh filet healthy seasoning**, 2) **smoked filet** and 3) **bottled in olive oil.**



Shelf-life assessment :

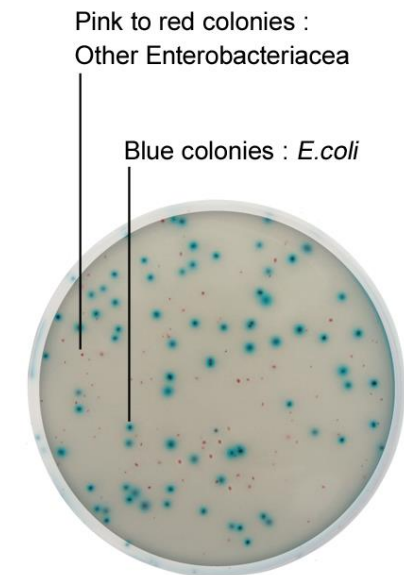
- Data on total shelf-life from literature (frozen products) and from prototype testing.
- Refrigerated products: Temp. 4 °C (1/3 total shelf-life), abuse Temp. 8 °C (2/3).
- Regulation (EC) No. 2073/2005 microbiological criteria for *L. monocytogenes* in ready-to-eat foods.
- Sensory properties: appearance, aroma, flavour, and texture. Different time points by means of a 3 point scale : 0 (similar to fresh product) to 2 (unacceptable).

Microbiological control:

- *Salmonella spp.*
- *Lysteria monocytogenes*
- *Lysteria spp.*
- *Shiguella spp.*
- *Enterobacteriaceae*
- Mesophilic bacteria
- Psychrophilic bacteria
- Histamine



n= 5 per product





Selected ideas for GREY MULLET

- Idea 2: Thin smoked filet
- Idea 21: Fresh fish fillet with different 'healthy' seasoning and marinades
- Idea 33: Ready-made fish filet in olive oil

Fresh fish fillet with different 'healthy' seasoning separately packed that consumer can choose and vary depending on the occasion



Idea 21: Fresh filet with different healthy seasoning

WP 28 New product development

41 ideas for new product development of value added products.

12 ideas selected for checking **production feasibility and microbiological control.**

6 ideas selected for **consumer evaluation** in Spain, UK, Germany, France and Italy.

3 ideas for grey mullet: fresh filet healthy seasoning, smoked filet and bottled in olive oil.

2 ideas for **grey mullet**: smoked filet and bottled in olive oil





Idea 2: Thin smoked filet

Idea 33: Ready-made fish filet in olive oil



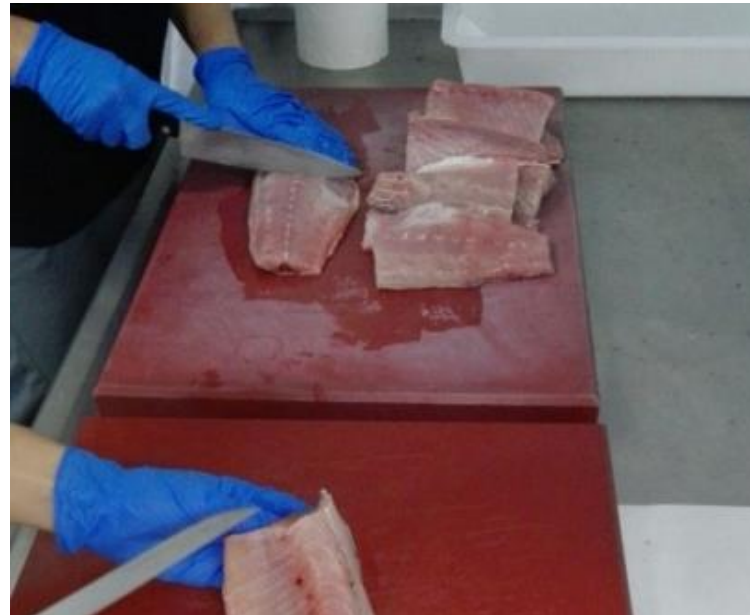
- Farmed fish not available
- Wild specimens have been used (policulture)
- Average weight 2 kg
- Filet yield 35-40%

IDEA 2: Thin SMOKED filet



Thin smoked filet

- Salting: mixture of salt (high quality) and sugar
- Prepare a tray with a thick layer of the salting on the bottom. Place the filets and cover them with a thick layer of the salting.
- Keep the fish in salting tray during 2,5 h
- Rinse the filet thoroughly to remove any trace of the salting





- **Smoking: use specific smoking wood pieces: wet oak chips**
- **Smoking temperatura 60°C**
- **Time 40 minutes**

Idea 21: Ready-made fish fillets in olive oil



Ready-made fish fillets stored in olive oil with visible glass packaging:

Filleting, bottle, filled with olive oil premium quality and esterilized during 40 minutes





Product message: 'Tradition';
labelled as a premium product



Grey mullet filet in olive
oil → “Captain”



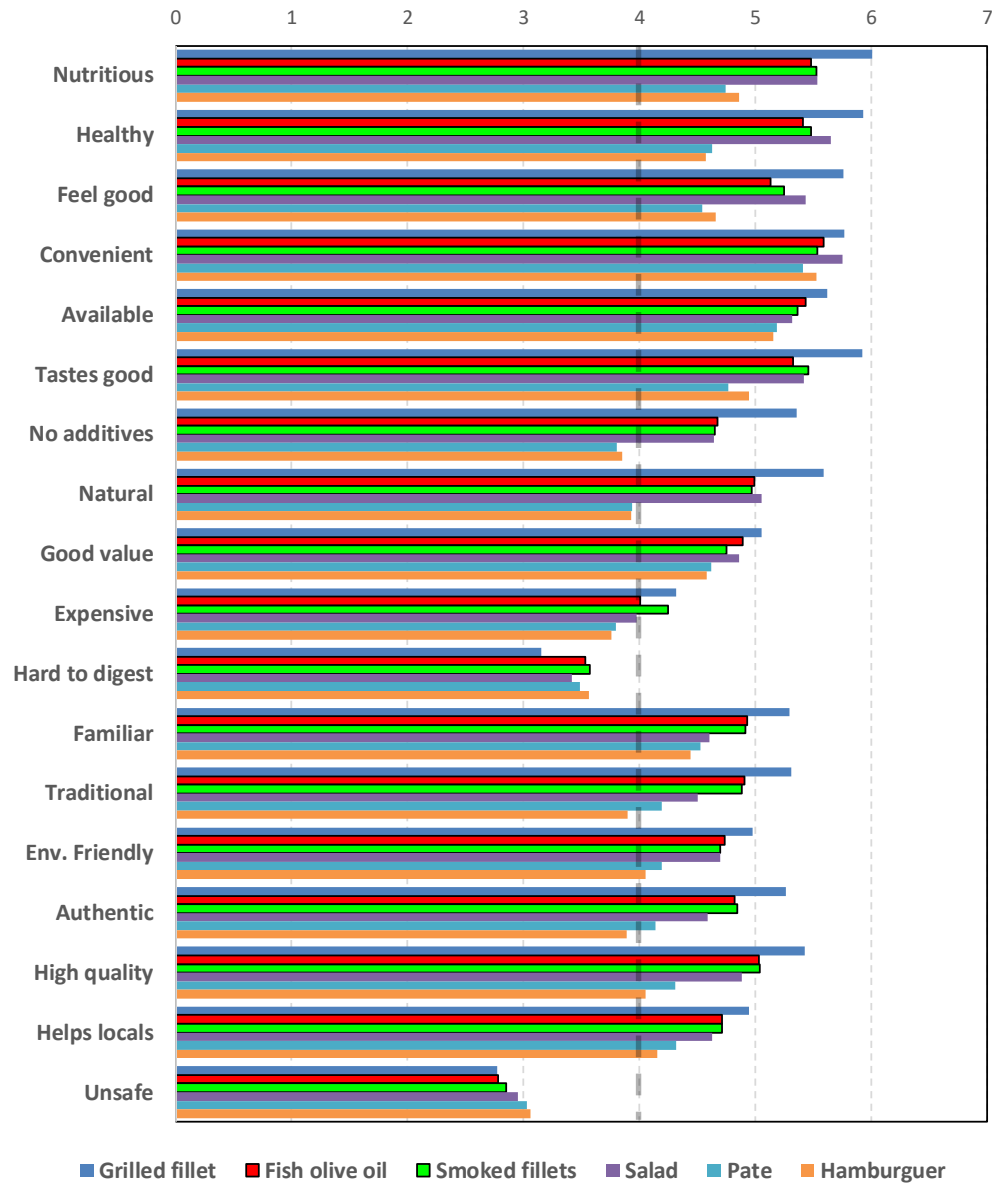
Consumer perception of new developed products: grey mullet.

- Questions about the products to be answered by the consumers (Spain, France, UK, Italy and Germany)
- 3 situations: blind test, expectations and full information

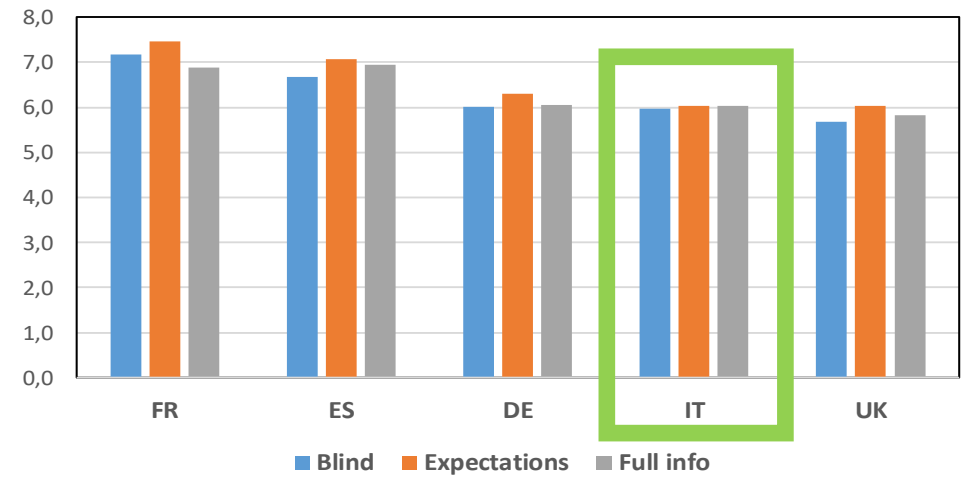
L. Guerrero and co-workers, IRTA 2016



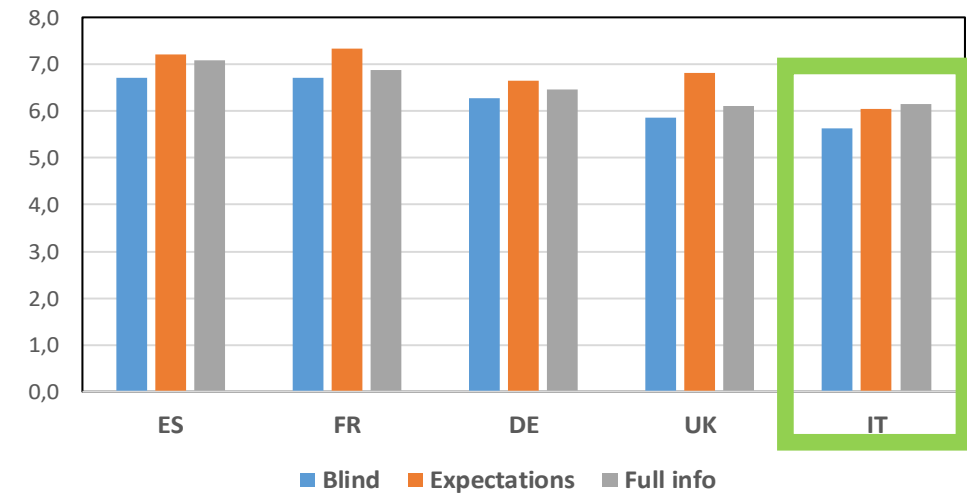
Consumer perception of NDP



Fish in olive oil

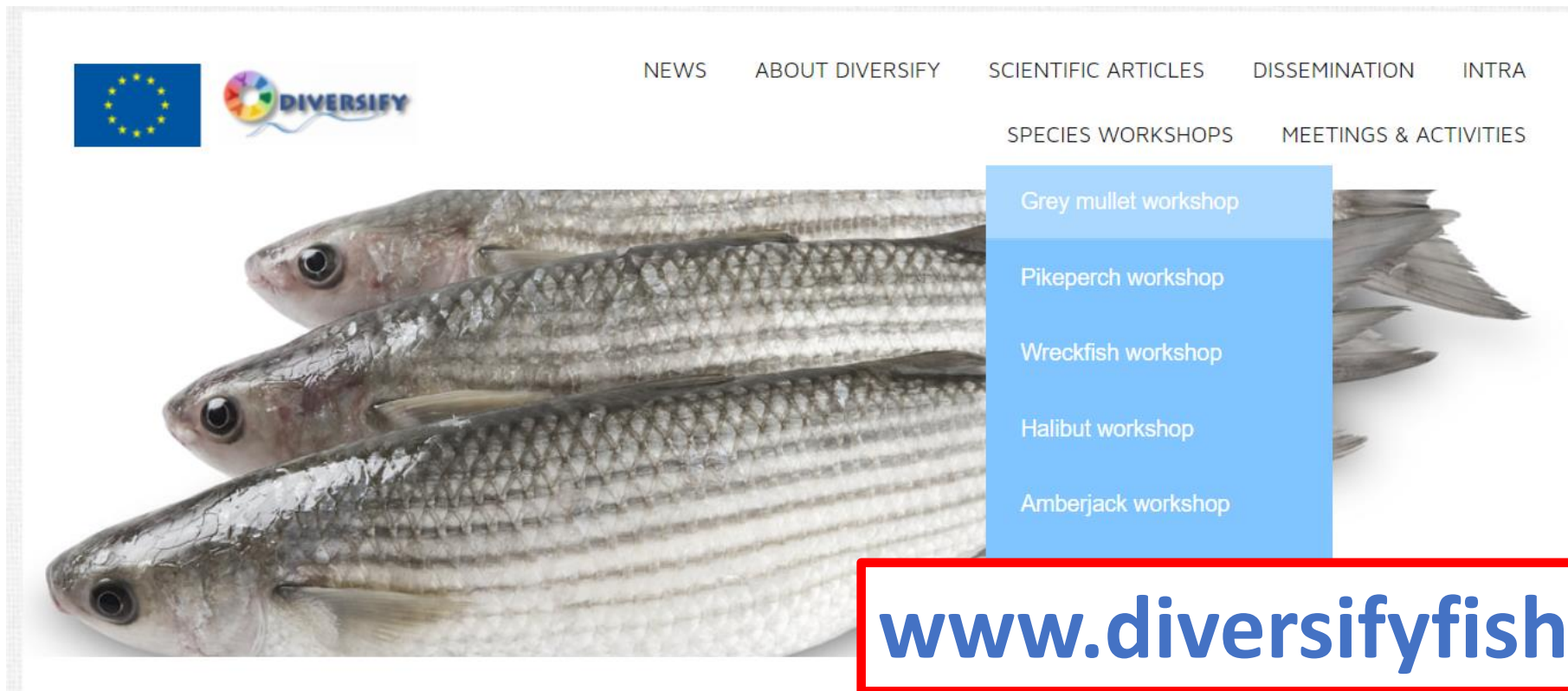


Smoked fillets



■ Grilled fillet
 ■ Fish olive oil
 ■ Smoked fillets
 ■ Salad
 ■ Pate
 ■ Hamburger

Technical leaflets



The screenshot shows the Diversify website interface. At the top left are the European Union flag and the Diversify logo. The navigation menu includes: NEWS, ABOUT DIVERSIFY, SCIENTIFIC ARTICLES, DISSEMINATION, INTRA, SPECIES WORKSHOPS, and MEETINGS & ACTIVITIES. A dropdown menu under 'SPECIES WORKSHOPS' is open, listing: Grey mullet workshop, Pikeperch workshop, Wreckfish workshop, Halibut workshop, and Amberjack workshop. Below the menu is a large image of three grey mullet fish. At the bottom right of the screenshot, the website URL www.diversifyfish.eu is displayed in a red-bordered box.



GREY MULLET KNOW-HOW TRANSFER WORKSHOP
14TH MAY 2018, BARI, ITALY



- 17:00-18:00 Round table discussion on bottlenecks to improved production and defining the farmer's needs (**invited speakers**)

For registration to the workshop, please contact Aldo Corriero **before April 30th, 2018, or fill up the form below.**

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Capture the QR code below to get the Technical Leaflet doc



[technical_leaflet_grey_mullet.pdf](#)
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THANK YOU

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