FISH FOR THE FUTURE: WHAT COULD INFLUENCE EUROPEAN CONSUMER CHOICE OF NEW AQUACULTURE PRODUCTS?
EVIDENCE FROM AN EXPERIMENTAL STUDY WITH LOW & MEDIUM PROCESSED PRODUCTS

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FISH FOR THE FUTURE

- How to discover new product solutions with the power to grow?
- What end-product attributes could influence European consumer choice of new aquaculture products?
- Are the attributes influencing consumer choice the same for different products and across countries?

Scientific American, March 1956, Magazine ad showing the quick-freezing seafood of the future
THE PERFECT PROTEIN?

WORLD FISH UTILIZATION AND SUPPLY

Consumers eating more seafood globally

Fish utilization (million tonnes)

Population (billions) and food supply (kg/capita)

EU28 ~ 25kg/capita


Food
Non-food uses
Population
Food supply

FAO (2016)
AQUACULTURE WITH POTENTIAL TO FEED THE WORLD?

FAO (2016)

WORLD CAPTURE FISHERIES AND AQUACULTURE PRODUCTION

Aquaculture production
Capture production

AQUACULTURE WITH POTENTIAL TO FEED THE WORLD?
WHAT ABOUT THE CONSUMER?

EU communication campaigns’ on Aquaculture (EC, 2014; N=85)

- choose sustainable seafood
- invest in sustainable aquaculture
- eat more seafood
- choose certified seafood
- learn about aquaculture
- eat more local freshwater fish
- eat more mussels
- aquaculture is negative
- ask your fishmonger
- eat more aquaculture products
- eat more farmed salmon
- eat more local carp
- eat more local fish
- invest in communication
- beware of unsustainable aquaculture
- boycott farmed salmon
- discover "Ombrine mascarine"
- discover aquaculture
- discover fish
- eat more trout
- eat more certified seafood
- eat more European products
- eat more local farmed fish
- eat more local trout
- eat more oysters
- eat more sustainable seafood
- read the labels
- stop industrial aquaculture
- stop local aquaculture expansion
FISH TODAY:
CONSUMERS FACING CHOICE OVERLOAD

Do consumers recognize aquaculture products?

(Mintel, 2016)
AQUACULTURE PRODUCTS (IN)VISIBLE?

You prefer farmed products, 8%

You prefer wild products, 34%

Don't know, 2%

You do not know if the products you buy or eat are wild or farmed, 14%

You have no preference, 31%

It depends on the type of product, 11%

(Special Eurobarometer 450: EU28, N=24452; year 2017)

WHAT ADS SAY

FAST AND TASTY FARMED FISH! A LEAP FORWARD IN PRICES YOU CAN'T IGNORE!

WHAT CONSUMERS HEAR

FAST blah blah blah blah blah blah blah forward blah blah blah blah blah ignore!
‘FIELD OF DREAMS’ VS TAILORING FISH?

- Under new common organisation of the markets (CMO) in fishery and aquaculture products (FAPs)

  *consumers play a pivotal role*

- Aquaculture is on the stage in life when is already too mature and diverse to have a general approach to all its products

(Banovic et al., 2016, 2017; Diversify, D29.6 and D29.8)
CONSUMER-DRIVEN PRODUCT IDEAS FROM DIVERSIFY

INVOLVE THE RIGHT CONSUMERS
(consumer as resource)
- Segments
- Early adopters

STRUCTURE THE CREATIVE PROCESS
(consumer as co-creator)
- Design & development of product ideas

CONTINUE WORKING WITH CONSUMERS
(consumer as user)
- Product testing & support

Experts
- Monitoring & control of design and development
- Building product prototypes

(Banovic et al, 2017a; Banovic et al., 2016a)
IT ALL STARTED WITH THE CONSUMER: CONSUMER AS CO-CREATOR OF NEW AQUACULTURE PRODUCTS

- Online survey (i.e. FR, GER, IT, SP & UK; N=2500) -> consumers segments

- Ten focus groups with early adopters (i.e. FR, GER, IT, SP & UK; N=60)

- 12 product ideas per country

Involved traditional (N=728; 30%)

Involved innovators (N=911; 36%)

Ambiguous indifferent (N=872; 34%)

(Banovic et al., 2016a,b; Reinders et al., 2016; D29.2)
# EXPERTS: PHYSICAL PRODUCT PROTOTYPES (I)

<table>
<thead>
<tr>
<th>Fish species</th>
<th>Developed DIVERSIFY product prototypes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meagre</td>
<td>Idea 6: Fish burgers shaped as fish (High processing)</td>
</tr>
<tr>
<td></td>
<td>Idea 4: Ready to eat meal: salad with fish (Low processing)</td>
</tr>
<tr>
<td>Pikeperch</td>
<td>Idea 9: Fish spreads/pate (High processing)</td>
</tr>
<tr>
<td>Grey mullet</td>
<td>Idea 2: Thin smoked fillets (Medium processing)</td>
</tr>
<tr>
<td></td>
<td>Idea 33: Ready-made fish fillets in olive oil (Medium processing)</td>
</tr>
<tr>
<td>Greater Amberjack</td>
<td>Idea 34: Fresh fish steak for grilling in the pan (Low processing)</td>
</tr>
</tbody>
</table>

(Diversify - D28.4, D29.4, CTAQUA, IRTA, HCMR)
CONSUMER: PHYSICAL PRODUCT PROTOTYPES (II) SENSORY PROFILING

(Diversify - D29.4, IRTA)
DEVELOPMENT OF THE PRODUCT MOCK: SELECTION OF ATTRIBUTES & ATTRIBUTE LEVELS

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Attribute levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country of origin - COO</td>
<td>EU-made</td>
</tr>
<tr>
<td></td>
<td>Own country-made</td>
</tr>
<tr>
<td></td>
<td>None</td>
</tr>
<tr>
<td>Price</td>
<td>Average price</td>
</tr>
<tr>
<td></td>
<td>+15% of average price</td>
</tr>
<tr>
<td></td>
<td>+30% of average price</td>
</tr>
<tr>
<td>Nutrition claim</td>
<td>High in protein</td>
</tr>
<tr>
<td></td>
<td>Omega 3</td>
</tr>
<tr>
<td></td>
<td>None</td>
</tr>
<tr>
<td>Health claim</td>
<td>Improves cardiovascular function</td>
</tr>
<tr>
<td></td>
<td>Improves brain function</td>
</tr>
<tr>
<td></td>
<td>None</td>
</tr>
<tr>
<td>Responsible - Environmental</td>
<td>ASC logo</td>
</tr>
<tr>
<td></td>
<td>None</td>
</tr>
</tbody>
</table>

Low processed (LPP)  

Medium processed (MPP)
THE STUDY

- **Online survey:** France, Germany, Italy, Spain, UK
- **N ~ 100 per product per country -> N ~ 200/country, N ~ 1000/overall**
- 3⁴x²¹ orthogonal design - 36 experimental sets partitioned into 12 choice sets of three

**Example of the choice sets:**

**The questionnaire**
- Product design
- Intrinsic & expected quality
- Extrinsic & expected quality
- Fish species knowledge & liking
- Fish beliefs (wild vs farmed fish)
- Purchase & consumption behaviour
- Sociodemographics
RESULTS:
INTRINSIC/ EXTRINSIC QUALITY AFTER VISUAL INSPECTION

Low processed product preferred

No difference, except in Germany

Like it extremely

Dislike it extremely

Visual appearance

Packaging and label

UK | Italy | France | Spain | Germany
---|-------|--------|-------|--------
Fresh Fish Steak (low processed)

Thin Smoked Fillet (medium processed)
RESULTS: CHOICE EXPERIMENTS
ATTRIBUTE IMPORTANCE

Country of Origin
Price
ASC Logo

<table>
<thead>
<tr>
<th>Country of Origin</th>
<th>Price</th>
<th>ASC Logo</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>30%</td>
<td>20%</td>
</tr>
<tr>
<td>Germany</td>
<td>20%</td>
<td>30%</td>
</tr>
<tr>
<td>Italy</td>
<td>40%</td>
<td>10%</td>
</tr>
<tr>
<td>Spain</td>
<td>10%</td>
<td>40%</td>
</tr>
<tr>
<td>UK</td>
<td>50%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Fresh fish steak
Thin smoked fillet
RESULTS: CHOICE EXPERIMENTS
UTILITIES – LOW PROCESSED

Country of Origin
Nutrition claim
Health claim
Certification
Price

France
Germany
Italy
Spain
UK
RESULTS: CHOICE EXPERIMENTS
UTILITIES – MEDIUM PROCESSED

Country of Origin | Nutrition claim | Health claim | Certification | Price

- France
- Germany
- Italy
- Spain
- UK

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CONCLUSIONS

GOOD NEWS!

It is possible to create new aquaculture products targeting early adopters ACROSS all big EU markets

- Homogeneous, converging fish-related culture, opportunity to fashion new product concepts at the cross-boarder European level, similar pattern in consumer choice-drivers, i.e.
  - COO & price come first, followed by quality certification (ASC Logo)
  - nutrition/health claims appear to have varying and minimal impact and are highly depend on the type of product (e.g. level of processing) and EU country

- Although...
  - A certain degree of customisation needed for different products and countries

- Results are country and product dependent...
  - COO important in MPP, claims more important in LPP
  - in the UK, all attribute versions selected do add something to the product
  - In GER ASC logo work well for both products
WHAT DID WE LEARN FROM DIVERSIFY?

▶ Adapt product information to the product type of highlight the most valuable benefits and attributes (e.g. ASC logo)

▶ Less clutter - convenience at the purchase point and at home - branding, storytelling, recipes essential

▶ Associations to responsible consumption and health

▶ Facilitate product implementation - communicate what consumer should do (‘where’, ‘when’ and ‘how’)
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http://www.diversifyfish.eu/

THANK YOU FOR YOUR ATTENTION!

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