ACCEPTANCE FACTORS FOR CONSUMERS AND FOR BUSINESSES

STAR-ProBio Final Meeting
Luana Ladu (TUB)
WP 5 Market Assessment

Goals

- Identify **sustainability preferences** of different consumer groups regarding environmental, social and economic sustainability aspects
- Assess the **propensity to buy bio-based products** and the importance of product characteristics (e.g. performance and quality) in influencing buying decisions

Methods

- 3-round Delphi survey (lime survey)
- Focus group and workshops for validating intermediate results
- Field Experiment for consumers

[Diagram showing the process of market assessment with Delphi rounds and other methods]

www.STAR-ProBio.eu

Funded by the EU H2020 Programme
Delphi Survey: generalities

- Target groups: professionals (special emphasis to procurers) and consumers (early adopters)
- Five countries + additional experts EU level
- Five languages (English, German, Italian, Spanish, French)
- Duration: of each round 11 weeks
- (1st round): 1,088 responses: 744 consumers and 344 professionals (85 procurers);
- (2nd round): 180 responses: 80 consumers; 100 professionals (25 procurers);
- (3rd round): 78 responses (only professionals).
Propensity to buy bio-based products and influence of values

- 75% of consumers are inclined or even very inclined to buy bio-based products
- 62% will normally prefer the bio-based over the fossil-based version

Influence of values on buying decisions:

- Environmental values
- Social values
- Economic values
- Knowledge values

- Strongly agree that current prod. & cons. models are a threat for the environment;
- Consumers agree to buy bio-based products on peer’s suggestions;
- Economic values reflected the importance of price and comparison with fossil-based;
- Consumers would appreciate more information on the production of bio-based products and on their impact

www.STAR-ProBio.eu Funded by the EU H2020 Programme
Awareness vs. Willingness to buy

Consumers

Professional Procurers

Willingness to buy bio-based products

Awareness of bio-based products

www.STAR-ProBio.eu

Funded by the EU H2020 Programme
Relevance of sustainability pillars

Consumers:
- Environmental aspects: 86%
- Economic issues: 54%
- Social issues: 64%

Professionals Total:
- Economic issues: 64%
- Social issues: 66%
- Environmental issues: 90%

Professional Procurers:
- Environmental issues: 89%
- Economic issues: 69%
- Social issues: 62%


www.STAR-ProBio.eu
Funded by the EU H2020 Programme
Preferences regarding environmental aspects

- Percentage of bio-based content
- Compostability
- Biodegradability
- Recyclability
- GHG emissions
- Lower GHG emissions than fossil-based alternatives
- No pollution of water, soil, and air beyond thresholds
- No deforestation or use of peatland
- No impact to bio-diversity
- No use of GMOs
- Resource efficiency
- Use of water
- Toxicity
- Lower toxicity than fossil-based alternatives
- Appropriate waste management
- Environmental life-cycle impacts
- Recyclability
- Biodegradability
- Compostability


www.STAR-ProBio.eu  [Funded by the EU H2020 Programme]
### % bio-based content & % reduction GHG over fossil-based

<table>
<thead>
<tr>
<th>MINIMUM %</th>
<th>Bio-based</th>
<th>GHG reduction</th>
<th>Misleading bio-based</th>
<th>Misleading GHG reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 10%</td>
<td>0%</td>
<td>6%</td>
<td>16%</td>
<td>11%</td>
</tr>
<tr>
<td>10 to 20%</td>
<td>4%</td>
<td>12%</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>20 to 30%</td>
<td>2%</td>
<td>8%</td>
<td>16%</td>
<td>33%</td>
</tr>
<tr>
<td>30 to 40%</td>
<td>6%</td>
<td>11%</td>
<td>6%</td>
<td>11%</td>
</tr>
<tr>
<td>40 to 50%</td>
<td>6%</td>
<td>37%</td>
<td>31%</td>
<td>28%</td>
</tr>
<tr>
<td>50 to 60%</td>
<td>13%</td>
<td>6%</td>
<td>10%</td>
<td>11%</td>
</tr>
<tr>
<td>60 to 70%</td>
<td>12%</td>
<td>6%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>70% or more</td>
<td>57%</td>
<td>14%</td>
<td>16%</td>
<td>6%</td>
</tr>
</tbody>
</table>

N Consumers: 423, N Professionals: 235, Procurers: 74

www.STAR-ProBio.eu

Funded by the EU H2020 Programme
Preferences regarding social aspects

Following social aspects are perceived as most important:

- No child labour
- No forced labour
- Health and safety of workers and users
- Food security

www.STAR-ProBio.eu

Funded by the EU H2020 Programme
Preferences regarding economic and circularity aspects

Important to promote:

- Use of renewable materials and prevent resource depletion;
- Responsible waste management;
- Efficient use of material resources.

Other characteristics influencing a decision to purchase a bio-based product

Life cycle cost were not discussed in the consumer version due to the complexity of this item.

N Consumers: 398, N Professionals Total: 235, N Professional Procurers: 74
Field Experiment among consumers

- **Location**: multinational company (IKEA)

- **Aim of the field experiment**: eliciting consumers’ (WTP) to assess market potential (through Holt and Laury elicitation mechanism)

- **Research questions**:
  - Are consumers willing to pay more for bio-based products than for fossil-based products?
  - Do certifications/labels on bio-based products affect the consumers' willingness to pay?

- **Experimental design**:
  
  Each consumer was presented with:
  
  - A conventional (fossil-based) product
  - A non-certified bio-based product
  - A certified bio-based product

[www.STAR-ProBio.eu](http://www.STAR-ProBio.eu) - Funded by the EU H2020 Programme
360 consumers participated in the experiment

120 observations collected for each product

For a total of 1080 observations
Results

Presence of a green premium

Results show the presence of a “green premium” for both bio-based and certified bio-based products. In particular, the presence of a sustainability certification (label) favours a greater consumers’ willingness to pay (WTP).

The importance of price

The experiment revealed that the estimated aggregated demand curves for conventional products showed convexity, while the estimated aggregated demand curves for certified goods showed concavity. This means that it is confirmed that the price of bio-based products significantly influences its market share.
Lessons learned

- Being able to prove and communicate that sustainability criteria are met will be a key acceptance driver for bio-based products;
- Quality is a leading factor to make the transition to a bio-based economy;
- The presence of a sustainability certification (label) favours a greater consumers’ WTP;
- EOL is product specific and it should be clearly communicated to consumer how to dispose a product;
- The origin of raw materials and the manufacturing place, is highly relevant, and should be, if possible, specified on a packaging label;
- Policy makers could promote acceptance of bio-based products by: adopting legislations (e.g. bans, taxation and subsidies); by stimulating demand via public procurement; and properly communicating the benefits of bio-based products.

www.STAR-ProBio.eu

Funded by the EU H2020 Programme
Publications


www.STAR-ProBio.eu  Funded by the EU H2020 Programme
Contact

Luana Ladu
luana.ladu@tu-berlin.de

Enrica Imbert
enrica.imbert@unitelmasapienza.it

www.star-probio.eu

Acknowledgements

Thank you for your attention!