SESSION 4
Outcomes & Guidelines

Preference mapping of sensory profiles and hedonist tests  p. 138
U. Fischer, DLR Pfalz

Segmentation of consumers with respect to their behaviour towards typical food products in France, Germany and Spain  p. 152
G. Giraud, ENITA Clermont

How to build up and improve food products typicality  p. 159
L. M. Albisu, CITA Zaragoza

Guidelines How to Control Typicality  p. 166
V. Baeten, CRA-W

How to promote food products typicality  p. 181
L. M. Albisu, CITA Zaragoza

Implementation of the project in Germany: DC Pfalz  p. 188
U. Fischer DLR Pfalz

Conclusion & Perspectives  p. 195
G. Giraud, ENITA Clermont

Who are the participants of the conference?  p. 201
Y. Kebede, ENITA’s student
Question which will be addressed

- Which wines and hams are liked by consumer? – Consumer preferences
- Why are some wines and hams liked by consumer? Drivers of preference
- What is the impact of labeling / packaging?
- Do all consumer like the same wine?
- How much differ consumer from France, Spain and Germany in their preference patterns?

What is the structure in the whole data set?

Principal Component Analysis

9 wines  28 sensory attributes  PCA  9 SCORES  28 LOADINGS

PC1, PC2 ...
PCA of sensory data of 6 Dornfelder and 3 Beaujolais wines

Beaujolais: sour, astringent, strawberry – less colour, less fruity
Dornfelder: fruity, red colour, sipcy less astringent, less sour

Do all consumers prefer the same wine?

Internal Preference Mapping
1. PCA using consumer preferences as a variable
2. Clusteranalysis of the individual loadings to group the consumers

194 consumers
194 LOADINGS
9 wines
9 SCORES
Preference mapping of 194 German consumers tasting 6 Dornfelder and 3 Beaujolais wines

Not much clustering, some preferences for Beaujolais and discounter Dornfelder

Main preferences for estate and co-op Dornfelders from vintage 2003

What sensory properties determine consumer preferences?

Drivers of preference
External Preference Mapping relating consumer preference to sensory properties (QDA)

Drivers of Preference: colour, fruitiness, sour cherry, sweetness, body – not sour, not astringent

Preference mapping: blind presentation to French consumers (N=77)

Beaujolais: astringent, veggy
Dornfelder: fruity, red colour
Internal Pref Map of French and German consumers

Internal Pref Map of German consumers
Drivers of preference: German consumer preferences correlated with descriptive sensory data 1st factor → Dornfelder dimension

Drivers of preference: German consumer preferences correlated with descriptive sensory data 2nd factor
Drivers of preference: French consumers preferences correlated with descriptive sensory data 1st factor

- Fleshy
- Sweet
- Dense
- Odour lactic
- Aroma persistency
- Fruitiness
- Red fruits odour
- Colour hue

Positive

- Acidity
- Vegetative odour
- Rubbery taste
- Vegetative taste
- Astringency
- Rubbery odour

Negative
Drivers of preference: French consumers preferences correlated with descriptive sensory data 2nd factor

Preference of German and French consumers

Interaction Plot

Dornfelder are more preferred by Germans, equal liking and disliking for Beaujolais
Conclusion Wine

• Drivers of preference for Dornfelder were colour, sour cherry, fruitiness, body and low sourness and astringency.

• Driver of preference for Beaujolais were body, astringency, fruitiness and colour.

• Blind and identified presentation gave similar results – thus labeling and packaging were less important.

• In France preference for Beaujolais and Dornfelder are equal, in Germany only a minority prefers Beaujolais.

• No meaningful clustering was possible.

• Typicality rating of experts and consumer preference were in good congruence.

Preference mapping of French and Spanish hams by French and Spanish consumers
PCA of Spanish experts sensory evaluation

French direction: salty, adhesiveness, less cured flavour, less greasiness
Spanish direction: Nutty, cured ham flavour, soft texture, less salty

Internal preference mapping of 7 Spanish and 3 French hams by 213 Spanish consumers

blind presentation
Clustering of consumers
Internal preference mapping of 7 Spanish and 3 French hams by 213 Spanish consumers

Identified presentation

Clustering of consumers

Sensory evaluation of French and Spanish hams by French experts

Iberian style Spanish ham strong in nutty and rancid flavour, higher fat content

Perpendicular direction French and Spanish ham
Preference map of French and Spanish hams by French consumers

Sensory map of French experts

Only few French consumers prefer Iberian style hams

Internal Pref Map of French and Spanish consumers
Preference of Spanish and French consumers

Interaction Plot

Internal Pref Map of Spanish and French consumers

Preference of Spanish and French consumers

Interaction Plot
Conclusion Ham

• Spanish consumers clearly preferred Spanish ham, even more when the label was identified.

• The majority of French consumers preferred French ham, but some liked Spanish ham as well.

• Drivers of preference for Spanish hams were nutty flavour and cured ham flavour, while French hams were preferred due to salty taste, raw ham odour and the absence of rancid flavour, typical to aged hams.

• French and Spanish consumer show opposite preferences.

• Internal and external preference mapping were powerful tools to characterise and interpret consumer preferences.

Segmentation of Consumers With Respect to Their Behaviour Towards Typical Food Products in France, Germany and Spain

G. Giraud ENITA Clermont
Cross-cultural preference mapping ham

Preference for own country of origin, some open tasters, French less exclusive
Information improves ratings but does not change preferences' orientation

Significant difference and some congruence

Spanish consumers better appreciated the selection than French did
French appreciations more diverse
There is place for Iberian ham in Aragon
Is there a place for Teruel ham in Auvergne?
Cross-cultural preference mapping wine

Preference for own country of origin, some open tasters, Information improves ratings but doesn’t change preferences’ orientation

D37 Dornfelder D. Weintor
D52 Dornfelder Rheinberg-Kellerei
B31 Beaujolais Château l’Eclair
B34 Beaujolais Père la Grolle
B56 Beaujolais Village Domaine Nugues
B62 Beaujolais Village Distributor

Significant difference and some similarity

Means and 95.0 Percent LSD Intervals

German consumers better appreciated the selection than French did
French appreciations more diverse
German more sensitive /information
Magic words Château, Domaine
Bad image distributor brand when known

1: B31 Beaujolais Château l’Eclair
2: B34 Beaujolais Père la Grolle
3: B56 Beaujolais Village Domaine Nugues
4: B62 Beaujolais Village Distributor
5: D37 Dornfelder D. Weintor
6: D52 Dornfelder Rheinberg-Kellerei
Clustering of German Consumers

Cluster analysis with standardized utilities (k-means)

- **Cluster 1**, n = 77
  Origin-driven buyers of domestic Dornfelder
- **Cluster 2**, n = 32
  Image-driven buyers of domestic Dornfelder
- **Cluster 3**, n = 49
  Price-sensitive buyers of estate-wines
- **Cluster 4**, n = 46
  Image-driven buyers of foreign Beaujolais-wine
Clustering of Spanish Consumers

- Cluster 2, n = 95, 44%
  Driven by local tastes
- Cluster 4, n = 65, 30%
  Driven by quality labels and high prices
- Cluster 3, n = 37, 17%
  Local tastes at low prices, and no need of quality label
- Cluster 1, n = 19, 9%
  Market niche for French hams
Decision Tree method likelihood explanation of buying behaviour

Tree diagram

Packs of ham bought with DD

Number of different brands Bought
Prob. ajusté - value=0.0001, Khi-deux=19.4667, ddl=1

2 brands; 3 brands and more

1 brand, <unquant>

Age
Prob. ajusté - value=0.0116, Khi-deux=8.3511, ddl=1

41 to 60 years, more than 60 years

20 to 40 years

Purchasing behaviour towards PGI ham, France

Error likelihood = 21.9%

Purchasing behaviour towards ham at a high price, France

Error likelihood = 6.9%
Purchasing behaviour towards Iberian ham, Spain

Error likelihood = 2.6%

How to build up and improve food products typicality

Luis-Miguel Albisu, CITA
Index

1. Typical food product components
2. Consumer reactions
3. Production requirements
4. Guidelines to build up and improve a typical food product

1.1 Typical food product components

• An agro-food chain approach
• Interdisciplinary analysis
• International comparisons
  • (France, Germany and Spain): exploratory
• Two products: ham and wine
• Typicality and a defined territory
• A main product characteristic linked to a particular territory
1.2 Typical food product components

- Specific raw materials and production know how
- Differentiated products
- Legislation and typical food products (PDO, PGI...)
- Product characteristics and minimum quality levels
- Generic and individual brands communication
- Not far away markets

1.3 Typical food product components

- Typicality assessment changes along the time
- Consumers establish the reference
- Objective and subjective measurements
- Physical and non-tangible attributes (intrinsic: search, experience and credence; and extrinsic characteristics)
- From consumer to production
- All actors in the agro-food chain influence the product and communicate its values to suppliers and customers
2.1 Consumers reactions

- A mixture of sensory and emotional values
- Origin ranks first or at the very top
- Local origins prevail over national and international origins
- Experts consumers evaluate most the origin
- Some consumers are willing to pay 50% more for DO products
- A significant percentage of consumers are willing to try foreign origins at high prices

2.2 Consumers reactions

- Taste and other sensory characteristics exert a great influence on consumers reactions
- Local products familiarity and availability could be determinant but also emotional attachments between local consumers and producers
- Sensory considerations have either positive or negative influences on foreign typical products
- Ageing could have a different evaluation on wine and ham
- Product identification can have strong consequences in consumers attitudes
- Identified products get higher and more extreme assessment values
- Strong feelings about control, trust and traceability
2.3 Consumers reactions

- Brands do not show a great influence but its significance vary according to their certification strength
- Distributors have different price market positioning
- Reactions with respect to price changes depending on the product and country: average and maximum values
- Product origin, prices, product characteristics, certifications, socio-demographics and many other aspects are determinants to differentiate consumers segments
- There are many niche markets which depend on the product and the place where the typical product will be sold

3.1 Production requirements

- Use of specific raw materials and consequent process control
- All the analytical methods able to distinguish: country, cultivar, breed
- Ability to translate market needs into production requirements
- Sensory analyses and profiles by consumers and experts is a crucial linkage
- Important role for experts to interpret consumers liking and translate into technical parameters
3.2 Production requirements

• Experts assessment with food chain actors allow for an integrated agro-food chain approach for typical products
• Experts do not differ much from consumers but more demanding
• Developed typicality scales and food chain experts gives consistent and reproducible results
• Drivers for typicality differed strongly between products and countries
• Qualitative Descriptive Analysis (QDA) (trained people) in different countries provide similar results
• The type of producer and production for distinct distribution channels might have a stronger impact on sensory and typicality than the geographic origin

3.3 Production requirements

• Attributes of typicality differ among products
• Drivers of typicality relating consumer preference to sensory preferences
• Experts sensory evaluation have their own drivers for each product
• There are drivers of typicality relating experts to sensory preferences
• Conducive to overall agreements
• Specific drivers for specific situations that fully describe and analyse a particular product
4.1 Guidelines to build up and improve a typical food product

- Set up clear and differentiated physico-chemical attributes to define the typical product identity
- Use of analytical tools to establish thresholds levels
- Minimum quality requirements for raw materials and processes complemented by control methods
- Employment of modern analytical techniques to assure technological improvement
- Consumers sensory tests along the time and from diverse groups
- Market consumption trends reports from different areas

4.2 Guidelines to build up and improve a typical food product

- Sensory experts panels with actors from the entire agro-food chain
- Linkages with consumers sensory results
- Experts express public opinions in the media
- Translation into specific measures for technical improvement
- From time to time, new technical specifications about the product typicality
- Feedback through the agro-food chain up to producers
4.3 Guidelines to build up and improve a typical food product

- Split a typical product into several products for different markets and segments but all having a common genuine identity
- Origin, traceability and health concerns should be reinforced
- Look at market drivers and how to implement them in the typical product
- Reinforce emotional attachments with close and friendly consumers
- Conquering far markets is like launching new products with consumers adjusting to new tastes
- Communicate to consumers all the attributes that are favourable
Take the situation you are in the supermarket …

How can I check the typicality of this product?

**WHY Typicality?**

**Changes in behaviour of European consumers:**

- require of high quality sanitary products (dietary, hygienic and health standards)
- looking for certification and reassurance of product origin and production methods

(EC doc*)

How to control Typicality?

- Different Points of View
  - Consumers Point of View
  - Retailers/distributors Point of View
  - Policy maker Point of View
How to control Typicality?

- Criteria driving the buying behaviour are:
  - Price (promotions)
  - Brand (loyalty cards)
  - Designation

**EEC Regulation Nº 2081/92**

| **A PDO (Protected Designation of Origin)** | covers the term used to describe foodstuffs which are produced, processed and prepared in a given geographical area using recognised know-how. |
| **A PGI (Protected Geographical Indication)** | the geographical link must occur in at least one of the stages of production, processing or preparation. Furthermore, the product can benefit from a good reputation. |
| **A TSG (Traditional Speciality Guaranteed)** | does not refer to the origin but highlights traditional character, either in the composition or means of production. |
Specifications of the PDOs and PGIs

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographical area</td>
<td></td>
</tr>
<tr>
<td>Proof of origin</td>
<td></td>
</tr>
<tr>
<td>Method of production</td>
<td></td>
</tr>
<tr>
<td>Link</td>
<td></td>
</tr>
<tr>
<td>Inspection body</td>
<td></td>
</tr>
<tr>
<td>Labelling</td>
<td></td>
</tr>
</tbody>
</table>

- **Description:** characteristics of the product
  - **physical** (shape, colour, weight, etc.);
  - **chemical** (minimum fat content, maximum water content, etc.);
  - **microbiological** (type of bacteria present, etc.);
  - **biological** (race, species, etc.);
  - **organoleptic** (colour, taste, flavour, odour, etc.)
Ham: Exemple of
JAMBON DE BAYONNE
(PGI)

Specifications “Jambon de Bayonne”

• **Name:**
  Jambon de Bayonne

• **Description:**
  Dry Cured Ham

• **Geographical area:**
  Pigs born and bred South west France Adour river valley
Specifications “Jambon de Bayonne”

• **Proof of origin:**
  Traceability along the process

• **Method of production:**
  Feed: cereals
  Curing: salt from Adour estuary
  "Pannage": application of a mixture of pork fat and flour to the muscular parts of the ham
  Sampling: judgement of the experts
  9 to 10 months

How authenticate typicality of dry cured hams?
Descriptors of Typicality of ham defined by the trained panels:

Spanish panel:
- Marbling
- Cured ham aroma
- Hardness
- Softness
- Cured ham flavour
- Saltiness
- Acorn (nut) flavour
- Sheen and greasiness

French panel:
- YELLOW COLOUR
- SUBCUTANEOUS FAT
- RED COLOUR
- HETEROGENEOUS FAT COLOUR
- RANCID FLAVOUR
- INTRAMUSCULAR FAT
- OIL TEXTURE
- CRUST

Typicality assessment (questionnaire) 45 participants

Measurement: Typicality assessment of food chain actors
Application field: Typicality assessment of food, drink and other items
Attributes, which are most important for typicality perception, More precisely defined attributes related to typicality.
Time: 5 weeks for writing, sending questionnaires, sending back of the answers and data processing.
Marginal cost: € 50 to € 100

Benefits:
- Adequacy: high for food and drink items perceived as very typical, weak for commodities and standardised products
- Accuracy: depends on the expertise and relevant selection of food chain actors
- Reliability: low
### Sensory profile analysis by trained panel (20 to 25 judges)

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Recording the intensity of sensory attributes with a trained panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application field</td>
<td>Sensory characterisation of an kind of food, drink or item</td>
</tr>
<tr>
<td>Time</td>
<td>12 weeks including the preparation, the measurement and the processing of the data.</td>
</tr>
<tr>
<td>Marginal cost</td>
<td>€ 600</td>
</tr>
<tr>
<td>Benefits</td>
<td>Adequacy: high if the panel is well trained and motivated</td>
</tr>
<tr>
<td></td>
<td>Accuracy: high, if the panel is well trained and sample handling is professional</td>
</tr>
<tr>
<td></td>
<td>Reliability: high, if the panel is well trained and sample handling is professional</td>
</tr>
</tbody>
</table>

### Conjoint Analysis (100 consumers)

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Trade-off measurement (Identification of the main typicality attributes expected by consumers and the weight and attractiveness of typicality elements in consumer perception)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application field</td>
<td>Any kind of good with different possible combination of attributes</td>
</tr>
<tr>
<td>Time</td>
<td>6,5 weeks</td>
</tr>
<tr>
<td>Marginal cost</td>
<td>50 € / consumer, including structural and personnel costs</td>
</tr>
<tr>
<td>Benefits</td>
<td>Adequacy: High</td>
</tr>
<tr>
<td></td>
<td>Accuracy: High</td>
</tr>
<tr>
<td></td>
<td>Reliability: High (if Ordinary Last Square statistical method used for analysis)</td>
</tr>
</tbody>
</table>
# Physico-chemical characterisation of typical food products

<table>
<thead>
<tr>
<th><strong>Technique</strong></th>
<th><strong>Measurement</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Visible NIR</td>
<td></td>
</tr>
<tr>
<td>• Fluorescence</td>
<td></td>
</tr>
<tr>
<td>• NMR</td>
<td>Metabolite study</td>
</tr>
<tr>
<td>• HPLC/MS</td>
<td>Volatiles</td>
</tr>
<tr>
<td>• SPME-HRGC</td>
<td>Volatiles</td>
</tr>
<tr>
<td>• SDS-PAGE</td>
<td>Protein fraction</td>
</tr>
<tr>
<td>• Mechanical testing</td>
<td>Characterisation of texture</td>
</tr>
</tbody>
</table>

## Fluorescence

**Measurement:** Physical

**Application field:** All the products (ham, wine, cheese, milk, honey, meat, cereals, flour, ...) with intrinsic fluorescent probes

**Time:** 3 minutes

**Marginal cost:** 40 €/sample

**Benefits:**

---

349

---

350
**SPME (Solid Phase Micro Extraction)-HRGC**

Measurement: Gas chromatography

Application field: Liquid samples – volatile analysis

Time: 2.5 hours

Marginal cost: € 30

Benefits:
- Adequacy: Optimum for the wine aroma analysis
- Accuracy: --
- Reliability: High

**Visible NIR**

Measurement: Physical

Application field: Ham analysis

Time: 20 minutes

Marginal cost: 10 €/sample (NIR analysis)
25 €/sample (NIR analysis + sample preparation)

Benefits:
- Adequacy: High for the global composition information
- Accuracy: --
- Reliability: High
**Electronic nose based on MOS sensors**

**Measurement:** Physicochemical

**Application field:** Ham aroma

**Time:** 3 hours

**Cost:**
- Budget of equipment: 72000 €
- Budget of consumables: 100 €
- Marginal cost (cost of one sample measurement): Not determined

**Benefits:**
- Adequacy: High for the global aroma information
- Accuracy: <10% (RSDr)
- Reliability: High

---

**Prediction of typicality descriptors by analytical techniques**

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>NIR</th>
<th>NMR</th>
<th>Fluor</th>
<th>HPLC/MS</th>
<th>SPME-HRGC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>0.61</td>
<td>0.59</td>
<td>0.56</td>
<td>0.42</td>
<td>0.41</td>
</tr>
<tr>
<td>Fat colour</td>
<td>0.52</td>
<td>0.57</td>
<td>0.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rancid flavour</td>
<td>0.60</td>
<td>0.67</td>
<td>0.41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acorn flavour</td>
<td>0.80</td>
<td>0.64</td>
<td>0.42</td>
<td>0.54</td>
<td></td>
</tr>
<tr>
<td>Sheen</td>
<td>0.64</td>
<td>0.59</td>
<td>0.42</td>
<td>0.62</td>
<td></td>
</tr>
<tr>
<td>CRUST</td>
<td>0.60</td>
<td>0.67</td>
<td>0.41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red Colour</td>
<td>0.56</td>
<td>0.56</td>
<td>0.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yellow Colour</td>
<td>0.78</td>
<td>0.73</td>
<td>0.45</td>
<td>0.61</td>
<td></td>
</tr>
<tr>
<td>Heterogeneous Fat content</td>
<td>0.84</td>
<td>0.81</td>
<td>0.42</td>
<td>0.36</td>
<td>0.61</td>
</tr>
<tr>
<td>Intramuscular Fat</td>
<td>0.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rancid Smell</td>
<td>0.53</td>
<td>0.45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raw Meat Flavour</td>
<td>0.56</td>
<td>0.53</td>
<td>0.36</td>
<td>0.35</td>
<td></td>
</tr>
<tr>
<td>Rancid Flavour</td>
<td>0.66</td>
<td>0.71</td>
<td>0.37</td>
<td>0.61</td>
<td></td>
</tr>
<tr>
<td>Pungent Flavour</td>
<td>0.53</td>
<td>0.68</td>
<td>0.38</td>
<td>0.53</td>
<td></td>
</tr>
<tr>
<td>Salty Taste</td>
<td>0.53</td>
<td>0.45</td>
<td>0.36</td>
<td>0.53</td>
<td></td>
</tr>
<tr>
<td>Dried Texture</td>
<td>0.47</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saltiness</td>
<td>0.44</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subcutaneous Fat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.43</td>
</tr>
<tr>
<td>Nutty Smell</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.44</td>
</tr>
<tr>
<td>Nutty Flavour</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.51</td>
</tr>
<tr>
<td>Flavour</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.41</td>
</tr>
<tr>
<td>Oil Texture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.61</td>
</tr>
<tr>
<td>Subcut. Fat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.41</td>
</tr>
<tr>
<td>Aroma</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.38</td>
</tr>
</tbody>
</table>
Wine Typicality as defined by panels

Descriptors of typicality of wine defined by the trained panels:

German panel: Dornfelder
• Colour intensity
• Colour hue
• Sour cherry
• Black berry / elder berry
• Herbaceous
• Green / vegetative
• Roasted / spicy
• Sweetness
• Soursness
• Alcohol
• Body
• Tannins

French panel: Beaujolais
• Colour intensity
• Colour hue
• Fruity
• Floral
• Spicy
• Sour
• Soft
• Tannins
**TOF-MS**

Measurement: Mass spectrometric rapid method

Application field: Characterisation of polyphenols in red wines

Time: 5 minutes

Marginal cost: € 25/sample, including structural and personal costs

Benefits:

---

**Thiolysis**

Measurement: Chromatographic reference method

Application field: Quantification of tannins in red wines

Time: 2.5 hours

Marginal cost: € 600/sample, including structural and personal costs

Benefits:
HPLC-DAD

Measurement: Chromatographic reference method

Application field: Quantification of phenolic acids, flavonols, and red pigments in red wines

Time: 2h 5 min

Marginal cost: €150/sample (240 euro/sample with MS analysis), including structural and personal costs

Benefits:

Prediction of typicality descriptors by analytical techniques

<table>
<thead>
<tr>
<th></th>
<th>Fluorescence</th>
<th>GC-SPME</th>
<th>HPLC-DAD-MS</th>
<th>Mass spectroscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>color intensity</td>
<td>0.53</td>
<td></td>
<td>0.62</td>
<td></td>
</tr>
<tr>
<td>color hue</td>
<td>0.46</td>
<td></td>
<td>0.55</td>
<td></td>
</tr>
<tr>
<td>strawberry</td>
<td></td>
<td></td>
<td>0.64</td>
<td></td>
</tr>
<tr>
<td>berry fruit</td>
<td>0.51</td>
<td>0.48</td>
<td>0.56</td>
<td></td>
</tr>
<tr>
<td>sour cherry</td>
<td>0.58</td>
<td>0.51</td>
<td>0.63</td>
<td></td>
</tr>
<tr>
<td>cooked plum/animal</td>
<td></td>
<td></td>
<td>0.56</td>
<td></td>
</tr>
<tr>
<td>green bean/elder</td>
<td>0.45</td>
<td></td>
<td>0.62</td>
<td></td>
</tr>
<tr>
<td>herbaceous</td>
<td>0.54</td>
<td></td>
<td>0.62</td>
<td></td>
</tr>
<tr>
<td>black pepper/nutmeg</td>
<td>0.6</td>
<td></td>
<td>0.69</td>
<td></td>
</tr>
<tr>
<td>fusel alcohol</td>
<td></td>
<td></td>
<td>0.56</td>
<td></td>
</tr>
<tr>
<td>buttery/cheesy</td>
<td>0.51</td>
<td></td>
<td>0.65</td>
<td></td>
</tr>
<tr>
<td>sweet</td>
<td>0.41</td>
<td>0.55</td>
<td>0.50</td>
<td></td>
</tr>
<tr>
<td>sour</td>
<td></td>
<td></td>
<td>0.63</td>
<td></td>
</tr>
<tr>
<td>fruity</td>
<td>0.52</td>
<td></td>
<td>0.61</td>
<td></td>
</tr>
<tr>
<td>green-vegetative</td>
<td></td>
<td></td>
<td>0.64</td>
<td></td>
</tr>
<tr>
<td>astringent</td>
<td>0.51</td>
<td></td>
<td>0.8</td>
<td>0.76</td>
</tr>
<tr>
<td>bitter</td>
<td></td>
<td></td>
<td></td>
<td>0.66</td>
</tr>
<tr>
<td>body/density</td>
<td>0.56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orrit</td>
<td></td>
<td>0.52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oredfruit</td>
<td>0.43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ospicy</td>
<td>0.53</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oempyr</td>
<td>0.43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gpepper</td>
<td>0.69</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
How to promote food products typicality

Luis-Miguel Albisu, CITA
1. The importance of typicality promotion

2. What and where to promote

3. Promotion organisation

4. Guidelines for generic promotions of typical food products

1.1 The importance of typicality promotion

• Typicality can be promoted by individual and collective actions
• Individual brands for typical products have an impact on local markets
• Weak brands do not have an impact on large markets
• Small and medium size producers require to act together
• Typical food products find difficulties to expand from limited geographical areas
1.2 The importance of typicality promotion

- Generic promotions are concerned with collective brands
- Collective brands can gather, formally or informally, many producers
- Typical food products increase their sales with generic promotions
- Generic promotions are also a good means to increase prices
- Food typical products promote the territory

1.3 The importance of typicality promotion

- A good way for agro-food chain coordination
- Generic promotions as a means to enter into distribution food chains
- Producers feel more identified with quality
- Generic promotions encourage commercial activities
- Synergies between the private and the public sectors
2.1 What and where to promote

- Product physical identification
- Typical food products and tradition
- Natural and healthy attributes
- Not sensory characteristics
- More emotional values

2.2 What and where to promote

- Collective communication reinforces information
- Individual communication is focused more on persuasion
- Public relations cheaper than mass media
- Radio very good cost/benefit ratio
- Promotion at sale places plus tasting
2.3 What and where to promote

- Special magazines have an influence on opinion leaders
- Opinion leaders influence consumers
- Promotion to facilitate development of distribution channels
- Gaining bargaining power
- Promotion should be carried out where there are commercial strengths

3.1 Promotion organisation

- Producers should be economically implied
- Compulsory or free for everybody
- Avoidance of free riders
- Balance between financial means and objectives
- Persistent effort along the time
3.2 Promotion organisation

- Mix of promotional actions
- Planning ahead
- Logistics the main shortcoming
- Products variety is attractive
- Evaluation of results

4.1 Guidelines for generic promotions of typical food products

- Set the objectives
- Define financial means
- Select partners
- Establish a calendar
- Involve public and private institutions
4.2 Guidelines for generic promotions of typical food products

- Search for the communication theme
- Select the market target
- Choose emphasis on consumers or distributors
- If distribution, plan ahead the logistics
- If consumers, establish the media plan

4.3 Guidelines for generic promotions of typical food products

- Look for news
- Contact opinion leaders
- Communicate with the rest of the agro-food chain
- Reinforce producers interest on product quality
- Evaluate results
Implementation of the TYPIC project in Germany
DC Pfalz

U. Fischer 1, R. Henseler 2, D. Janik 2, E. Schrank 3

1 DLR-Rheinpfalz, Dept. Viticulture & Enology, Neustadt, Germany
2 Pfalzwein e.V., Neustadt, Germany
3 President of the Vinters Association Pfalz, Dackenheim, Germany

Dessimination of TYPIC in Germany

- Development of a regional quality mark DC Pfalz for typical wines from the Pfalz region
- Implementation of a typicality assessment to select wines of a typical sensory profile
- Promotion of typicality of the Pfalz region towards consumers
Objective:

DC Pfalz offers the consumer a reliable and constant quality guarantee for dry wines from typical wine varieties from the Pfalz region.

DC Pfalz – a typical wine with a profile

- The DC Pfalz quality mark belongs like a brand only one entity the Pfalzwein e.V., which is responsible for promotion of wine and producers from the Pfalz.
- At the same time, each producer is eligible to apply for the DC Pfalz quality mark.
- Equal appearance due to the DC Pfalz capsule.
- Central quality control and marketing.
- Promotion financed by 10 cent advertisement contribution per capsule by the DC Pfalz producer
- Comprehensive and typical sensory profile – reliable quality and risk minimisation for wine purchase by consumers
- High profile in the market due to many suppliers
- Simplified wine selection due to high recognition of the DC Pfalz capsule
DC Pfalz – prerequisite

- Only wines of the typical vine varieties are eligible: Riesling, Pinot blanc, Pinot gris, Pinot noir, Dornfelder

- Potential alcohol at harvest are 10.5 or 11.3 % vol., exceeding legal minimum requirements by 1 to 2.5 % vol.

- DC Pfalz are restricted to dry wines only (max. 9 g/L residual sugar and max. titratable acidity + 2 g/L residual sugar)

- DC Pfalz wines have to fit into a typical sensory profile

- DC Pfalz wines have to score a minimum of 3 points on a 5-point-quality scale

- DC Pfalz wines have to be assessed as typical by the majority of the DC Pfalz commission (minimum of 6 experts)

- Little or no control of production factors, major control at the sensory level, which is relevant to the consumer

DC Pfalz is geared to the typicality of Pfalz wines offered to consumers

The assessed typicality, marked as DC Pfalz in the middle of the scale, refers to a Dornfelder, which is purchased by an average consumer. The more the sensory intensity deviates from this stereotype, the more your mark will shift to the left or right side. DC Pfalz does not refer to your personal ideal of a Dornfelder.
Sensory standards for typical attributes

Assessed wines
Discussion suited for DC Pfalz yes or no

1st DC Pfalz assessment 17.12.2004 at the DLR Rheinpfalz

Enologists, heads of enology labs, consultants, wine comptroller, regional wine quality certification board

DC Pfalz commission
DC Pfalz - profile Dornfelder

Sensory
Sour cheery, blackberry and elder berry notes dominates the bouquet, accompanied by spicy and herbaceous odours. The intense coloured wine displays on the palate fruity notes and mild tannins and not detectable sweetness.

Typical sensory attributes

- Colour intensity
- Sour cherry
- Black berry
- Rosemary
- Spicy
- Green/vegetative

- Colour hue
- Sweetness
- Sourness
- Tannins
- Body
- Fruity taste

DC Pfalz profile for a 2003 DORNFELEDER

<table>
<thead>
<tr>
<th>Colour intensity</th>
<th>Colour hue</th>
<th>Body</th>
<th>Tannins</th>
<th>Fruity</th>
<th>Sour</th>
<th>Sweet</th>
<th>Fresh grass</th>
<th>Green/veggy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

Odour 3.2 3.4
Taste 3.5 3.3
Harmony 3.3 3.3
Mean 3.3 3.3

Approval DC Pfalz 80% 90%

Estate Klein 17.12.
Estate Klein 10.01.
DC Pfalz - profile Dornfelder

Viticulture and enology recommendations for typicality

- Pruning to achieve moderate yields, removal of apical shoots, bisection of grape clusters, prolonged hanging time, minimum of 75°Oechsle (10.5 % potential alcohol)
- 10 to 14 days fermentation on the skin, pectinase treatment, sufficient oxygen application, warming to 38°C at end of fermentation.
- Thermo vinification at 87°C, 12 hours of skin maceration at 40°C, pectinase treatment, fermentation at 20 to 25°C, addition of enological tannins can be beneficial
- Blending of skin fermentation and thermo vinification, aging of sub fraction in used barrique barrels.
Current figures

- More than 300,000 DC Pfalz bottles in the first year
- 60 DC Pfalz wines
- 35 DC Pfalz producers
- 6 co-operatives, 28 wine estates and 2 wineries
- 45% rejection rate during sensory assessment
- Dornfelder the leading DC Pfalz variety
- DC Pfalz presence during FIFA soccer world championship 2006, in Lufthansa longue, at wine shows

DC Pfalz creates regional identity to the PFALZ

It is not sufficient anymore to offer wines free of defects!

DC Pfalz makes the next move:
Positive sensory attributes and a comprehensible profile aims to convince the consumer

Vision and Mission:
If a bottle displays the DC PFALZ capsule, the wine has to taste like the PFALZ, an authentic and typical image of the landscape, nature and people.
Typical Food Products in Europe: Consumer Preference and Objective Assessment

**Final Conference**

**Conclusion and Perspectives**

G. Giraud ENITA Clermont

---

**Work-plan**

- **Sensory profiles**
  - Selection of typical/ non-typical food products
  - Assessment of the organoleptic properties of typical food products

- **Consumer survey**
  - Decision on scanned data panel
  - Measurement of consumer purchasing and acceptability of typical food products

- **Objective characterisation**
  - Choice of the best protocols
  - Physico-chemical markers of typicality in food products

- **Statistical analysis**
  - Interactions models on typicality, physico-chemical markers and consumer perception
  - Identification of the factors of consumer acceptability in case of congruence
  - Identification of the factors of consumer unwillingness in case of divergence

- **Guidelines**
  - To build
  - To promote
  - To control food products typicality
**Focus on some findings**

- **Typical food products well endure physico-chemical analysis**
  - Diversity of products is well established
  - Fingerprint methods identify specific traits
    - Ex.: Crus Beaujolais, matured Teruel, Iberian or Basque Hams
  - Authentication methods are a tool for promotion of typicality

- **Consumers’ responses towards typicality are as diverse as products are**
  - Small segment connoisseur, selective expectations
  - Majority has a more fuzzy knowledge but appreciate
  - Opportunity for distant consumption of typical foods at an European level
Focus on outcomes issued

- **Typicality Assessment Scale**
  - Aims at helping sensory designing of products with full respect of diversity ... atypical
- **DC Pfalz a concrete implementation of TYPIC**
- **Method Assessment Forms**
  - Fit well with stakeholders and end-users expectations
- **Unique combination of analytical methods and consumer sciences**
  - Successful exchanges despite …
  - Complex protocol and …
  - Hard logistics
    - same sets of samples with full respect of consumers volunteer

Typicality assessment scale

<table>
<thead>
<tr>
<th></th>
<th>too weak</th>
<th>typic</th>
<th>too strong</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sour cherry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>black berry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>herbaceous</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>spicy-roasted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>green-vegetal</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>overall typicality</th>
<th>non typic</th>
<th>typic</th>
<th></th>
</tr>
</thead>
</table>
Orientation of Guidelines

- Range and limit of each method
  - both physico-chemical and consumer methods
- Adequacy, accuracy for specific measurements
  - Dornfelder typicality is linked to colour intensity, Beaujolais typicality is based on acidity
  - XX method is adapted to measure such YY trait...
  - however this method is limited is a case of ZZ ....
- Make the fair and lucid assessment of methods used
  - targeted optimized measurements
  - statistically justified and practically based
  - balanced report of scientific work
  - interest for the promotion of typical food products

29 analytical and consumer methods assessed

<table>
<thead>
<tr>
<th>Method Assessment Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
</tr>
<tr>
<td>Type of measurement</td>
</tr>
<tr>
<td>Application field</td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Range</td>
</tr>
<tr>
<td>Limit</td>
</tr>
<tr>
<td>Cost</td>
</tr>
<tr>
<td>Time of preparation</td>
</tr>
<tr>
<td>Time of measurement</td>
</tr>
<tr>
<td>Time of data processing</td>
</tr>
<tr>
<td>Required skills</td>
</tr>
<tr>
<td>Required experience</td>
</tr>
<tr>
<td>Required p-m</td>
</tr>
<tr>
<td>Budget</td>
</tr>
<tr>
<td>Marginal cost</td>
</tr>
<tr>
<td>Benefits</td>
</tr>
<tr>
<td>Adequacy</td>
</tr>
<tr>
<td>Accuracy</td>
</tr>
<tr>
<td>Reliability</td>
</tr>
<tr>
<td>Optimal target</td>
</tr>
</tbody>
</table>
Publication, dissemination

www.typic.org until 31 December 2007

- Presentations towards professionnal meetings
  Neustadt, Rodez, Bad Kreuznach, Villefranche, Eisenach, Teruel

- Presentations towards scientific meetings
  Caceres, Beaune, Stuttgart, Boston, Rodez, Riva del Garda, Firenze, Seoul,
  Tarbes, Clermont, Chicago, Montpellier, Hambourg, Paris, Dubrovnik

- Publications in peer reviews
  publ. Meat Sc. submitted: Electrophoresis, RAM, EMAC, IFAMR

- Technical committee 16 representatives of stakeholders
  - 6 PhD candidates, 2 post-Doc
  - 6/7 sub-contractors are professionnal
  - Link with other EU FP6 projects

SINERGI, TRACE, MAXFUN, FLAVO, FOODCOMM

Ready for FP7

Food Labels Aided Recall in France

<table>
<thead>
<tr>
<th>Do you know the following food labels?</th>
<th>375 respondents May 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appellation d’Origine Contrôlée</td>
<td>57.2%</td>
</tr>
<tr>
<td>Label Rouge</td>
<td>80.6%</td>
</tr>
<tr>
<td>Organic Farming</td>
<td>61.4%</td>
</tr>
<tr>
<td>Mountain Food Product</td>
<td>42.0%</td>
</tr>
<tr>
<td>Protected Designation of Origin</td>
<td>7.2%</td>
</tr>
<tr>
<td>Protected Geographical Indication</td>
<td>2.9%</td>
</tr>
<tr>
<td>Organic Farming</td>
<td>17.6%</td>
</tr>
<tr>
<td>Traditional Speciality Guaranteed</td>
<td>2.9%</td>
</tr>
</tbody>
</table>

Clear need of campaign of promotion of EU GIs labels
Warm-hearted thanks to
the external members of the Technical Committee:

- Agricultural producers organisations
  - Rafael Navarro, Roland Furrer, Erik Thevenod-Mottet, Rafael del Rey, Armin Göring, Bernd Wechsler, Edwin Schrank, Enrique Bayona, Norbert Weber
- Agro-Food Industry and Distribution representatives
  - Anne Bouhour-Arnaud, Javier Salinas, Jean-Pierre Poma
- European consumer associations
  - Eleni Alevritou
- Food policy administrators
  - Richard Balling, Pilar De las Heras, François Roncin, Hervé Briand, Christine Ton-Nu

A special thank to
Gesa Wesseler, Ersilia Moliterno, EU DG Agriculture
and to Rosanna D’Amario EU DG Research

Thank you for your attention.
Who are the 127 participants of the conference?

Status of the participants

<table>
<thead>
<tr>
<th>Status</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>31%</td>
</tr>
<tr>
<td>Professionals</td>
<td>27%</td>
</tr>
<tr>
<td>Researchers</td>
<td>42%</td>
</tr>
</tbody>
</table>

Descriptive statistics done by students from Agro-Marketing Master ENITA Clermont

Gender & age issues

Gender distribution

- Males: 57%
- Females: 43%

Age distribution

- Senior: 39%
- 30-45 years: 24%
- < 30 years: 27%
- > 45 years: 10%
Gender & status

Guaranteed Origin of Participants