CONSUMER STUDIES.
WHAT CAN WE CONCLUDE?

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DESIGN OF CONSUMER STUDIES

- PRODUCT / MUSCLE EVALUATED
- TEST LOCATION: home test, hall test
- METHODOLOGY USED IN SAMPLE PREPARATION
- METHODOLOGY TO DETERMINE BOAR TAIN COMPOUNDS
- TYPE OF SAMPLES (SEX, AND & SKA LEVELS,...)
- QUESTIONNAIRE: ATTRIBUTES AND SCALE
- CONSUMER’S PROFILE
- INFORMATION PROVIDED TO THE CONSUMERS
- SENSITIVITY TO ANDROSTENONE
- PRESENTATION OF RESULTS AND DATA ANALYSIS

CONSUMER STUDIES IN THE LITERATURE

43 papers
33 methods of designs
50 trials
46 trials

TYPE OF PRODUCT

TEST LOCATION: HOME TEST vs HALL TEST

Consumers/study
1970-79
1980-89
1990-99
2000-09
2010-11

1 home test
3 hall test
4
4
3

15-115
16-480 (214)

N=50
TEST LOCATION: HOME TEST vs HALL TEST

HOME TEST
- High variability in pork preparation
- Need of more consumers & samples
- Low-medium % returned questionnaires
- Conditions close to consumption reality

HALL TEST
- Controlled conditions
- Less consumers and samples
- All the questionnaires recovered
- Less similar to consumption reality

What is the best? It depends on the objectives of the study.
Comparison, cross-cultural studies... at same conditions
Enhance the problem
'Real' situation

Variability between consumers studies in cooking methodology.
Is it good?
No, if we want to compare (at the same conditions)
Yes, if we want to have representation of all type of cooking
Harmonization of cooking methods/temperature could be risky
Greater number of scale categories → Finer discrimination among stimulus.

Most respondents cannot handle more than a few categories.

Midpoint of the scale (neither like nor dislike,...) → optional

- Apathy option?

- Easiest response? → Force consumers (Guerrero, 1999)

Can the scale be harmonized? Yes

LEVELS OF THE EVALUATION SCALE

Attributes Evaluated

Acceptability or pleasantness or liking → odour or flavour or overall

Strength odour or flavour → while cooking or in the dish

Fatness, tenderness, juiciness,...

Acceptability compared with normal

Abnormal odour and taste, in-mouth feeling,...

Midpoint of the scale (neither like nor dislike,...) → optional

- Apathy option?

- Easiest response? → Force consumers (Guerrero, 1999)

Most respondents cannot handle more than a few categories.

Optimal: between 5 and 9 → no single optimal number of categories (Malhotra, 2006)

Can the scale be harmonized? Yes

In 33 different consumer studies:

| Odour acceptability | 20 |
| Flavour acceptability | 18 |
| Overall acceptability | 15 |
| Tenderness | 11 |
| Cook liking | 8 |
| Juiciness | 5 |

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RESULTS

Proportion of consumers who react negatively, % of dissatisfied/satisfied consumers

Different appreciation depending on the sex

Average of acceptability or intensity scores

EM accepted as itself

Lower acceptability EM

Acceptability EM depends on BOAR TAINT level

Acceptability EM depends on AND and/or SKA levels

Acceptability EM depends on SKA level

Acceptability EM depends on AND level

Lower acceptability EM

EM accepted as itself

RESULTS PORK PRODUCTS: CONCLUSIONS

EM accepted

Lower acceptability EM

Acceptability EM depends on BOAR TAINT level

Acceptability EM depends on ANDROS and/or SKA level

Acceptability EM depends on SKA level

Acceptability EM depends on ANDROS level

Sensitive consumers (%):

4 methods to determine consumer sensitivity:

- Sippet
- Scratch
- Scratch and sniff panels
- Scratch and sniff panels

Sippet: odourant dip up to nostril of androst (long chain is efficient)

Scratch and sniff panels: with staples of different long chain components

Country Total Women Men

BE 45.3 51.1 34.5

DE 17.6 19.3 15.6

ES 30.9 - 47.5 37.3 - 53.6 23.7 - 45.5

FR 44.5 59.2 55.6

NO 39.45.5 46.4 26.3

UK 47.6 58.9 36.5

RESULTS: SENSITIVITY TO ANDROSTENONE

16 different trials

13 trials with pork

8 EU cty + World

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RESULTS: SENSITIVITY TO ANDROSTENONE

11 papers

16 different trials

13 trials with pork
Acceptability of boar meat depends on the sensitivity of the consumers to androstenone. Sensitive consumers have lower odour acceptability scores than insensitive.

**WHAT CAN WE CONCLUDE?**

- There is a high variability among consumer studies.
- In some aspects this variability enriches the results, but in some others it makes more difficult to draw conclusions.
- Boar taint affects at consumers’ acceptability of boar meat.
- Acceptability depends on the levels of androstenone and/or skatole, being skatole the most important (when sensitivity was not considered).
- Some studies conclude that acceptability of boar meat could depend on other compounds. Except in a recent study.
- Acceptability of boar meat also depends on the sensitivity of consumers to androstenone (that depends on the gender).
- Cooking and temperature of the samples produce different perception of boar taint or its compounds → how do this affect at consumer response?
- We cannot establish thresholds for androstenone and skatole → Harmonization of analytical methodologies is needed (or relationship between them).

**CONSIDERATIONS**

Do we need harmonized methods for consumer studies?

- Yes, if the objective is compare between studies: cross-cultural studies
- No, if we want to mimic the usual methodology or if the objective is to evaluate a specific methodology
- But, maybe some aspects could be harmonized

Variety is the spice of life but... Homogeneity makes the things much easier

What should be harmonized:

- Methods of analysis of androstenone and skatole (or find relationship between them)
- Type of sample and location used for the chemical analysis
- Attributes to evaluate (but open to others)
- Scale of evaluation of the attributes by consumers
- Thresholds? (when methods would be standardized → fix threshold with a trained panel)

Homogeneity makes the things much easier, but... Variety is the spice of life

As a consumer... enjoy the pork meat free of boar taint, prepared the way you prefer the best.

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