The EUROP carcass grading system cannot predict the eating quality of beef

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Outline

• Importance of Eating Quality
• EUROP carcase grading system
• Analysis to assess EUROP vs Consumer Eating Quality
• Demonstrate no association
Decreased market share of beef in the European market

Meat supply for group of 8 EU countries - Germany, France, Italy, Spain, UK, Netherlands, Hungary, Finland - in tonnes
Which is better?
# European Carcass Classification

## Fatness score

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<th>3</th>
<th>4L</th>
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## Conformation score
## European Carcass Classification

### Fatness score

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**Conformation score**
Increasing Lean Meat Yield decreases IMF

Increasing Yield
Decreasing IMF
IMF Improves Eating Quality

Increasing sensory scores
Hypothesis
Hypothesis

- EUROP score will negatively correlate with eating quality
Design

- 100 carcasses
  - Cows and Young Bulls
  - Polish and French Cattle and Consumers
  - EUROP Score Range E- to P+
  - 7 Cuts
    - Oysterblade, Tenderloin, Outside, Rump, Topside, Striploin, knuckle

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<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Minimum</th>
<th>Maximum</th>
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<tr>
<td>USoss</td>
<td>100</td>
<td>300.3</td>
<td>163.05</td>
<td>120</td>
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<td>341.8</td>
<td>154.76</td>
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<td>CarcWt</td>
<td>100</td>
<td>330.4</td>
<td>49.97</td>
<td>202</td>
<td>474.8</td>
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Taste Panels
Untrained Consumer taste panels

- Tenderness: 0 - 100
- Juiciness: 0 - 100
- Like flavour: 0 - 100
- Overall Liking: 0 - 100
MQ4

Tenderness  x  0.3
  +
Juiciness    x  0.1
  +
Flavour      x  0.3
  +
Overall Liking  x  0.3

MQ4 score
Average MQ4 Score for each cut

MQ4 Score

KNU066 | OUT005 | OYS036 | RMP131 | STR045 | TDR062 | TOP073
Statistical Analysis

• Linear mixed effects model
  – Base model
    • Source Country
    • Consumer Country
    • Gender
    • Cut
  – Additional covariates tested
    • EUROP score
    • USA Ossification score
    • USA Marbling score
    • Carcass Weight
Results
The MQ4 score and EUROP Grade

MQ4 Score vs Europe Carcass Grade
The MQ4 score and EUROP Grade

No Difference!
MQ4 score and EUROP Grade

MQ4 Score

EUROP Carcass Grade
MQ4 score and EUROP Grade

Topside

EUROP Carcass Grade

MQ4 Score
MQ4 score and EUROP Grade

Topside

No Difference!
MQ4 score and EUROP Grade

No Difference!
MQ4 score and EUROP Grade

Striploin

MQ4 Score vs. EUROP Carcass Grade
MQ4 score and EUROP Grade

Striploin

No Difference!
MQ4 score and EUROP Grade

EUROP Carcass Grade

Outside
MQ4 score and EUROP Grade

Rump

EUROP Carcass Grade

MQ4 Score
MQ4 score and EUROP Grade

Rump

No Logical Pattern!
MQ4 score and EUROP Grade

Knuckle
MQ4 score and EUROP Grade

Knuckle

No Logical Pattern!
MQ4 score and EUROP Grade

Oyster Blade

EUROP Carcass Grade

MQ4 Score

E-  U=  U-  R+  R=  R-  O+  O=  O-  P+
MQ4 score and EUROP Grade

Oyster Blade

No Logical Pattern!
MQ4 score and EUROP Grade

No Logical Pattern!
Fattness, Age and Weight?

Europe Carcass Grade

MQ4 Score

[Images of pork and diagram with bars for MQ4 Score]
Fattness, Age and Weight?

No Change!
Hypothesis

• EUROP score will negatively correlate with eating quality
Hypothesis

- EUROP score will negatively correlate with eating quality
Hypothesis

• EUROP score will negatively correlate with eating quality

Implication:
EUROP can not be used as a proxy system to describe Eating Quality

A specific eating quality system is required!
Conclusion
Conclusions

- EUROP score does not correlate with eating quality
Acknowledgements

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- Dave Pethick
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- Francoise Turin
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