Consequences of different national ZP equations in EU to estimate lean meat content in pig carcasses

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BASIS OF PIG CARCASS GRADING

UE REG. 1234/2007

UE REG. 1249/2009 (rules of implementation...)

MAIN PRINCIPLES

- Criteria: evaluation of lean meat content in the carcass
- Based objective measurements
- Representative sample of the population
- Required constraints of error
- ...
TECHNOLOGIES APPROVED FOR PIG CARCASS GRADING USED IN EU (2013)

- Light reflection: 52.0%
- Ultrasound: 24.5%
- ZP-method: 15.7%
- Image analysis: 7.8%

Number of countries with approved ZP method:
- Ruler: 11
- Optiscan-TP: 4
- MD02: 1
METHOD ZP  
(small abattoirs)

F-ZP: Shortest measurement of fat+skin thicknesses over *gluteus medius* m.

M-ZP: Mínimum distance from vertebral channel to the craneal end of the *gluteus medius*
Dispersion of Pig Carcases on grades EU 27 in 2011 (in 1000 heads)
## Official Formulas to Estimate %Lean Meat with ZP Method by Country

<table>
<thead>
<tr>
<th>Country</th>
<th>EU Decision</th>
<th>Intercept</th>
<th>F-ZP</th>
<th>M-ZP</th>
<th>Hot CW</th>
<th>CW (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE</td>
<td>2012/146/UE</td>
<td>58.81491</td>
<td>-0.6415</td>
<td>0.16873</td>
<td>-</td>
<td>60-130</td>
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<tr>
<td>CZ</td>
<td>2013/187/UE</td>
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<td>-0.43868</td>
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<td>-</td>
<td>60-120</td>
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<td>DE</td>
<td>2011/258/EU</td>
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<td>-0.56495</td>
<td>0.13199</td>
<td>-</td>
<td>50-120</td>
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<tr>
<td>SK</td>
<td>2009/622/EC</td>
<td>59.79</td>
<td>-0.581</td>
<td>0.107</td>
<td>-</td>
<td>60-120</td>
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<tr>
<td>ES</td>
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<td>-</td>
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<tr>
<td>FR</td>
<td>2006/784/EC</td>
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<td>LV</td>
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<tr>
<td>LT</td>
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<td>HU</td>
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<td>SI</td>
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<td>-0.72992</td>
<td>0.12157</td>
<td>-</td>
<td>50-120</td>
</tr>
</tbody>
</table>
NATIONAL SAMPLES USED FROM NATIONAL TRIALS AND MEASUREMENT TOOL

Spain (n=132) Ruler
Slovenia (n=121) DM02
France (n=250) Calliper
Germany (n=308) Ruler
Belgium (n=140) Optiscan-TP

Pooled (n=951)
% of carcasses from the data set within each SEUROP classes after applying the official ZP formula in each country
CONCLUSIONS

Differences in the results can be ascribed to:

- The diversity of pig national populations across countries (sexes and genotypes)

- Methodological differences (different tools used to measure ZP, differences in the measurements due to the operator)

- Observed differences between approved ZP equations can be considered too high to be acceptable in view of EU harmonization.
Thank you for your attention