



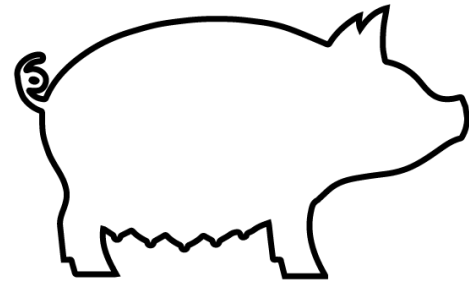
# Sensory meat quality differences in crossbred offspring of different terminal sire lines

**E. Kowalski, E. Vossen, M. Aluwé, S. Millet, S. De Smet**

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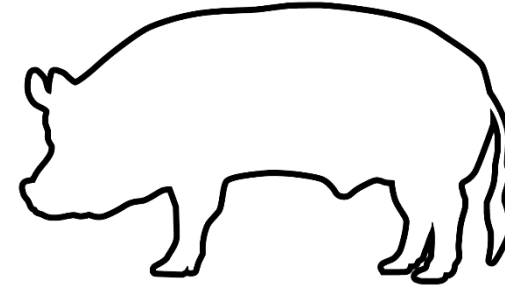


# Belgian pig genetics

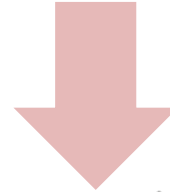


Hybrid sow

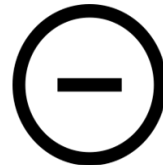
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Belgian Piétrain

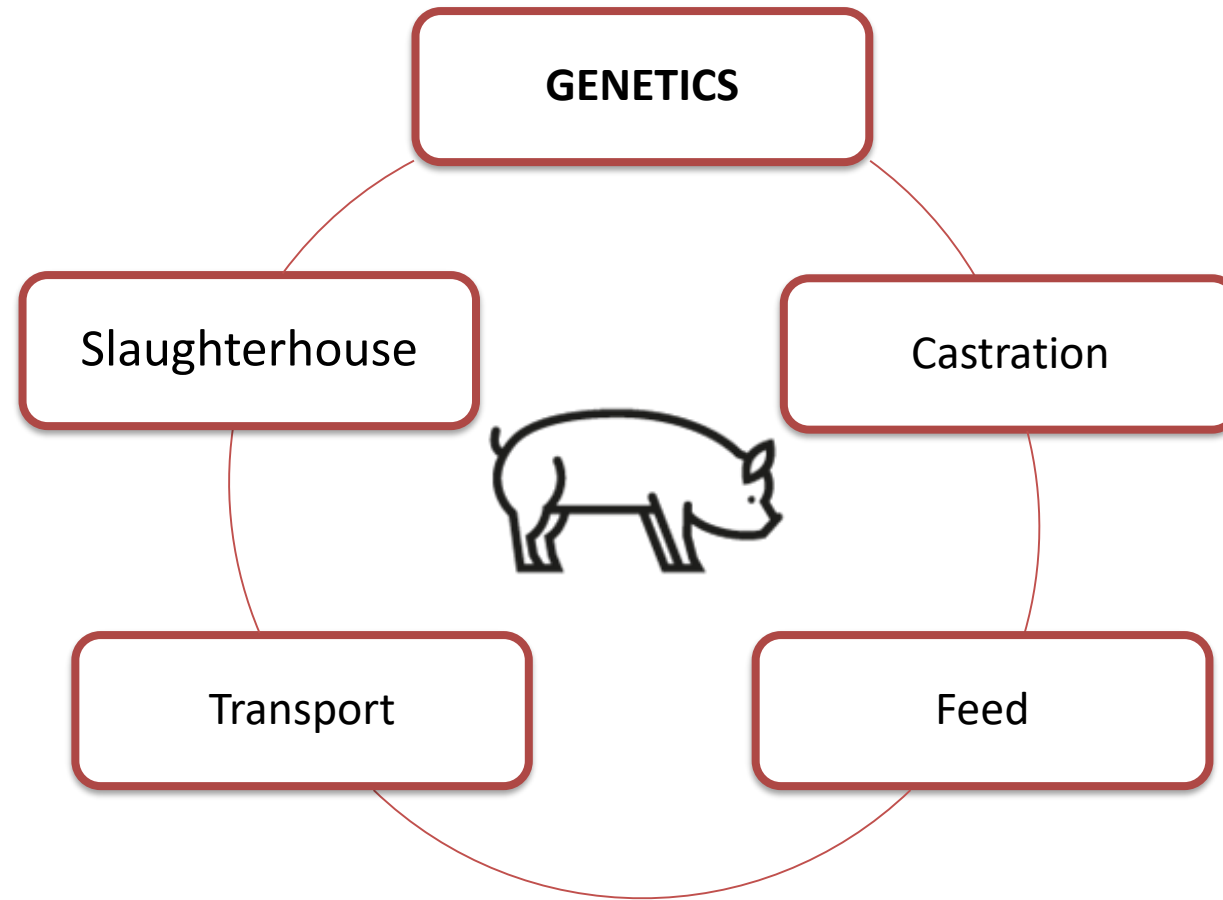


Low feed conversion ratio  
High carcass quality



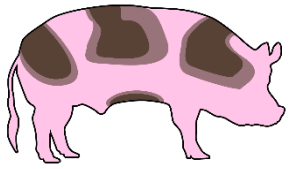
Low intramuscular fat content  
Lower water-holding capacity

# Need to improve meat quality

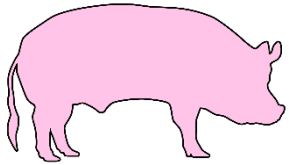


# Is it possible to improve meat quality via genetics?

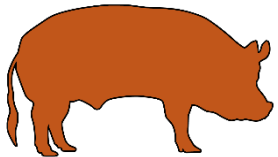
Focus on sire lines



Belgian Piétrain



French Piétrain (Hypor Maxter)



Canadian Duroc (Hypor Magnus)

Homozygous stress *positive* gene (*RYR1*)  
Characterized by low intramuscular fat content

Homozygous stress *negative* gene (*RYR1*)  
Characterized by a higher intramuscular fat content

# Experimental set-up

- Crosses with 'Topigs 20' sows
- 2 sexes: Gilts (G) and Immunocastrates (IC)
- 9 weeks => slaughter weight approx. 115 kg
- Housing:
  - 5 animals/pen
  - Single sex rearing
  - Feed and water *ad libitum*

# Measurements

## Performances & carcass quality

- Min. 6 pen replicates/sire line/sex
- Performances: at pen level
- Carcass quality: at animal level

## Meat quality

- 20 animals/sire line/sex
- Drip loss (EZ-drip loss method)
- Intramuscular fat content

# Sensory evaluation

## 3 attributes:

- Tenderness
- Juiciness
- Overall liking

	Expert panel	Consumer panel
# Participants	6 experts	120 households
Cooking procedure	Grilled until temp. of 75 °C (standardized)	Prepared at home (not standardized)
Scale	Visual analogue scale: 0-> 100	Hedonic 9-scale (0:very bad -> 9:very good)

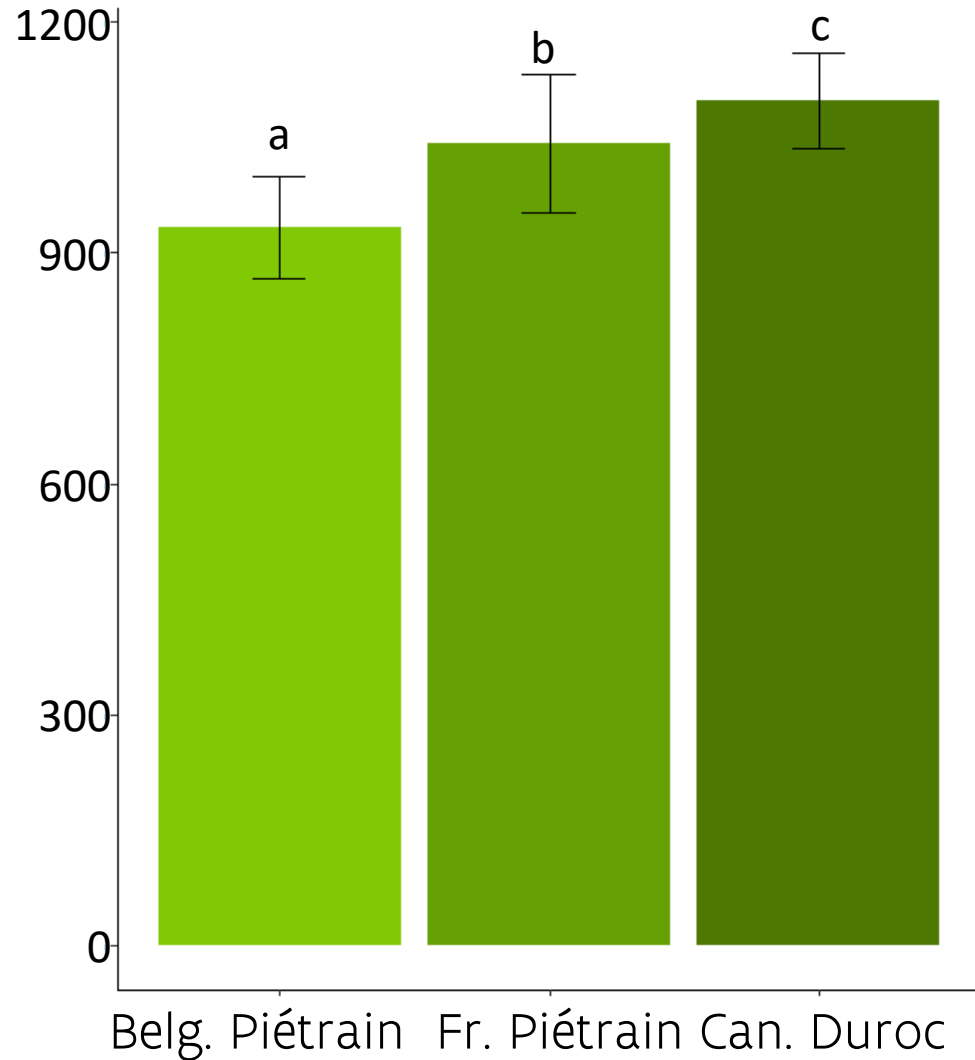
# Overview results

- Performance
- Carcass quality
- Meat quality
- Sensory evaluation

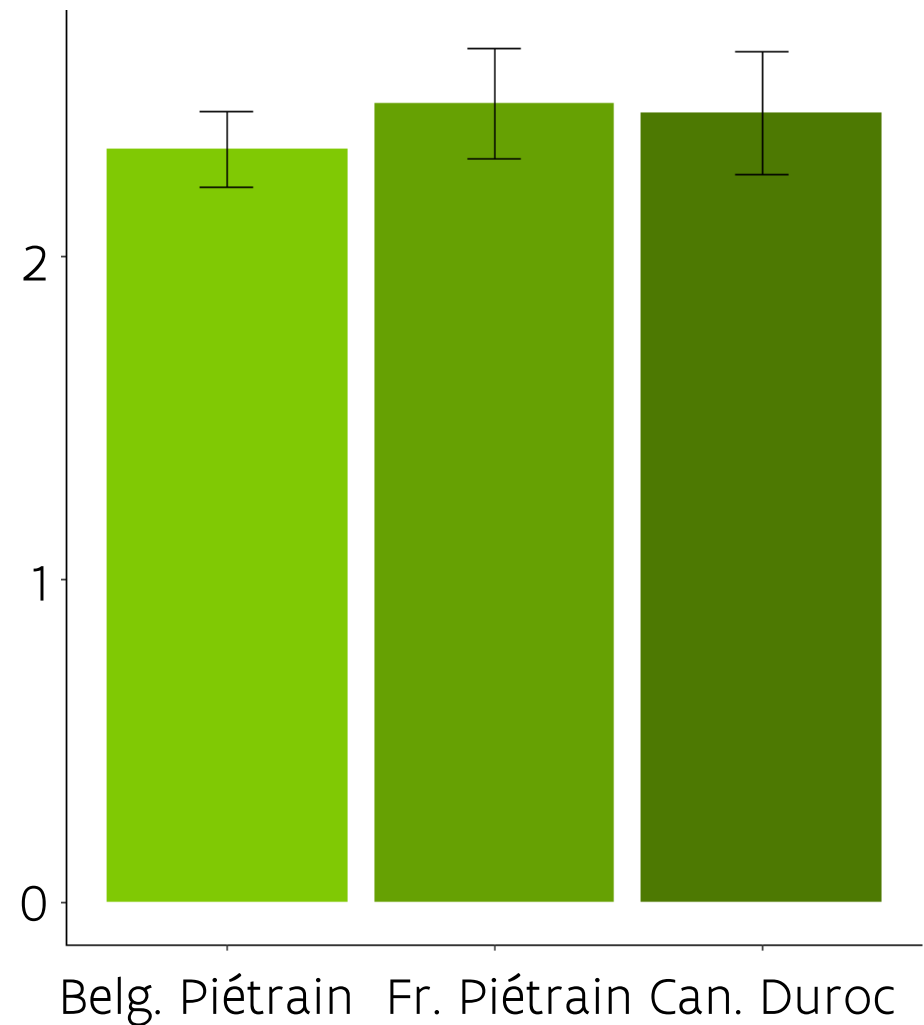


# Performance

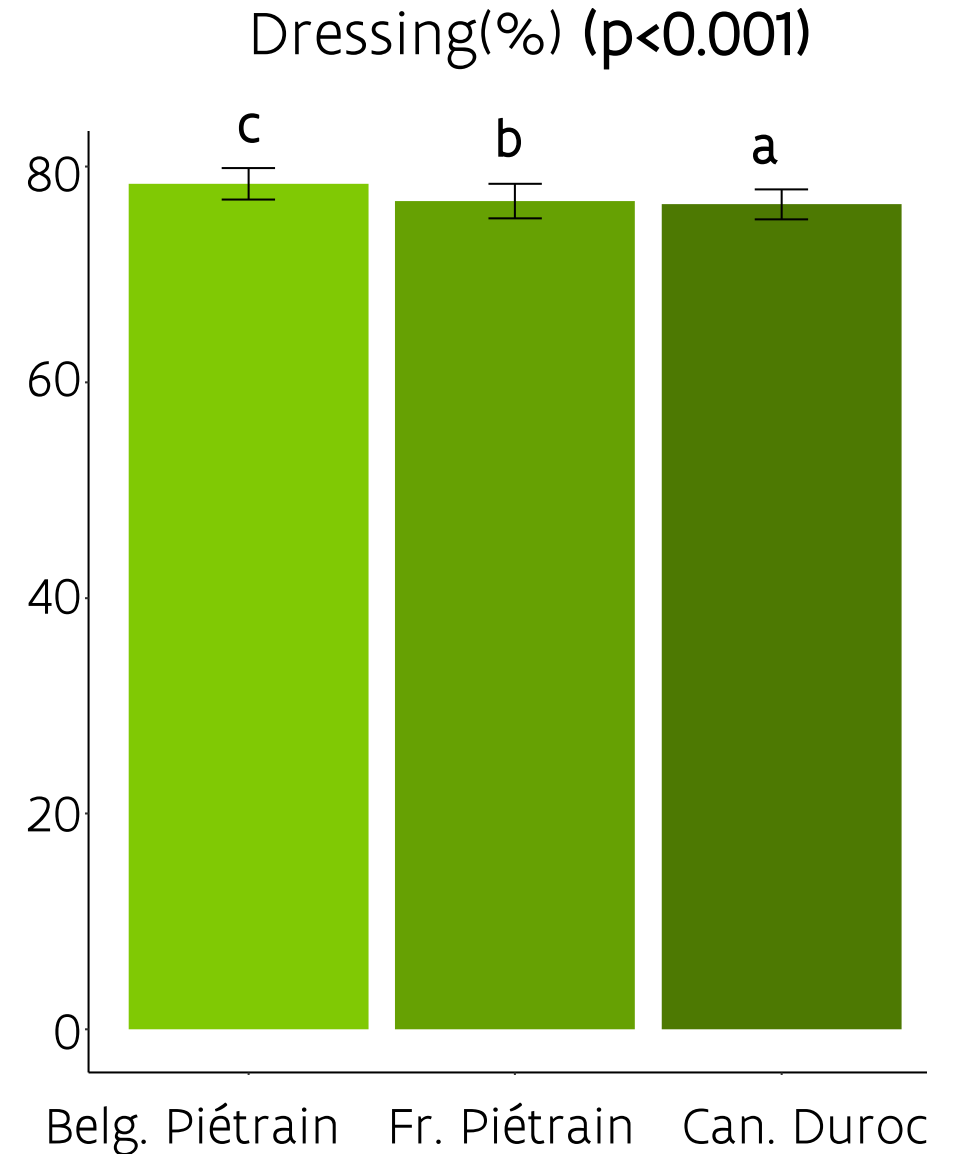
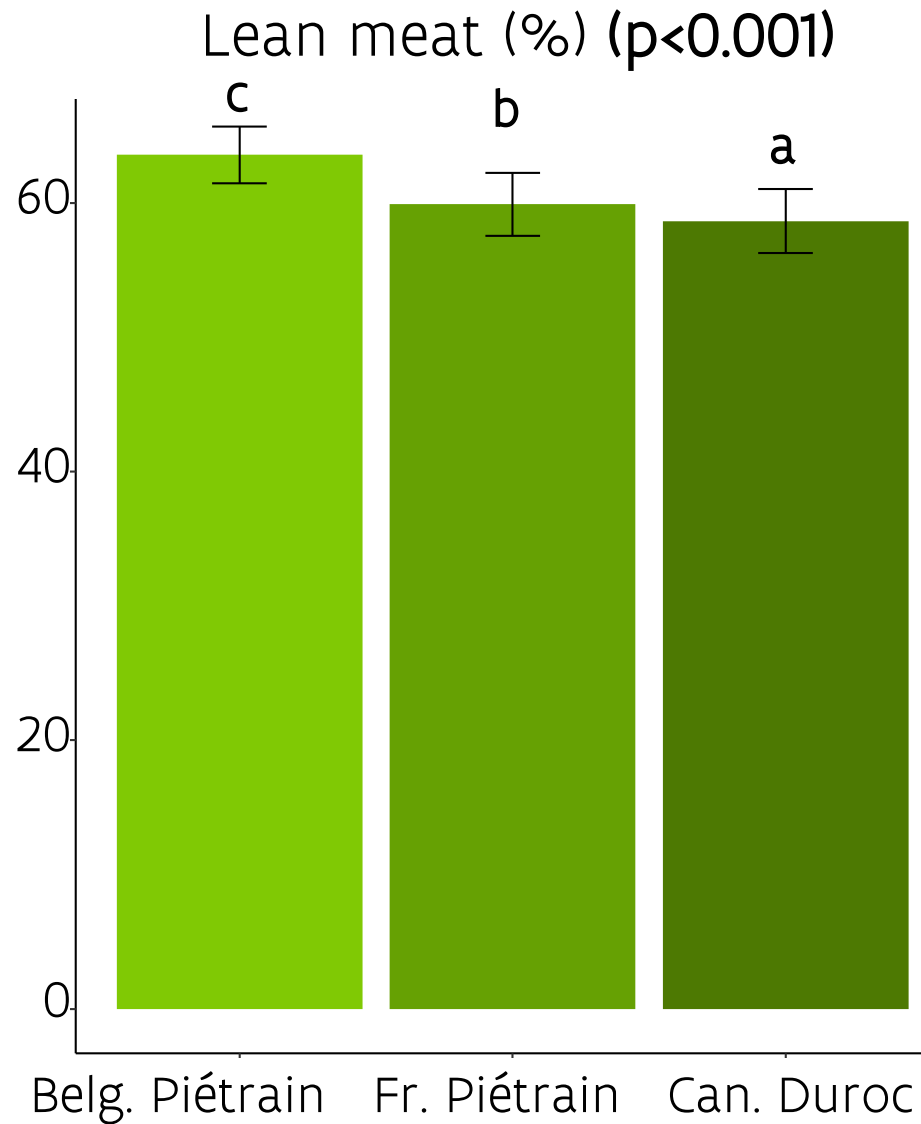
Daily growth rate (g/day) ( $p < 0.001$ )



Feed conversion ratio (g/g) ( $p = 0.050$ )



# Carcass quality

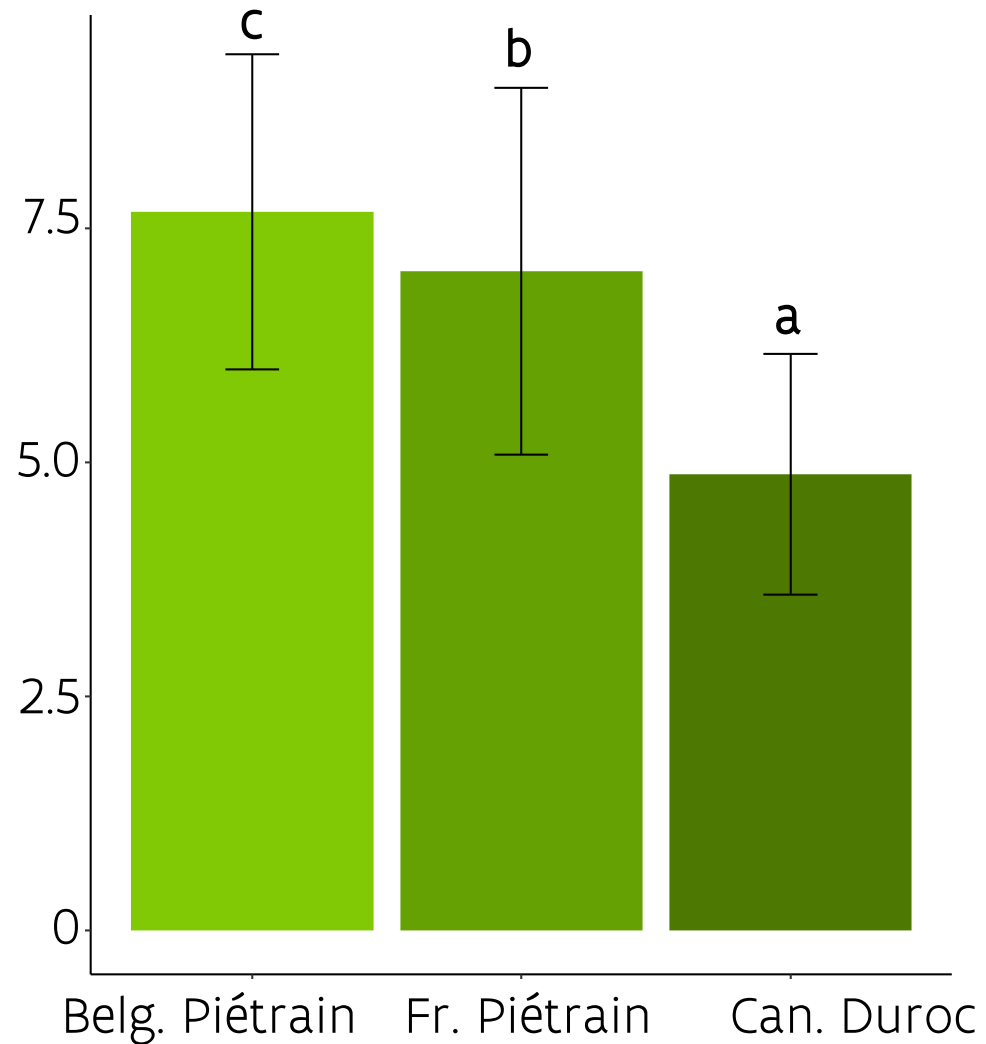


# Overview results

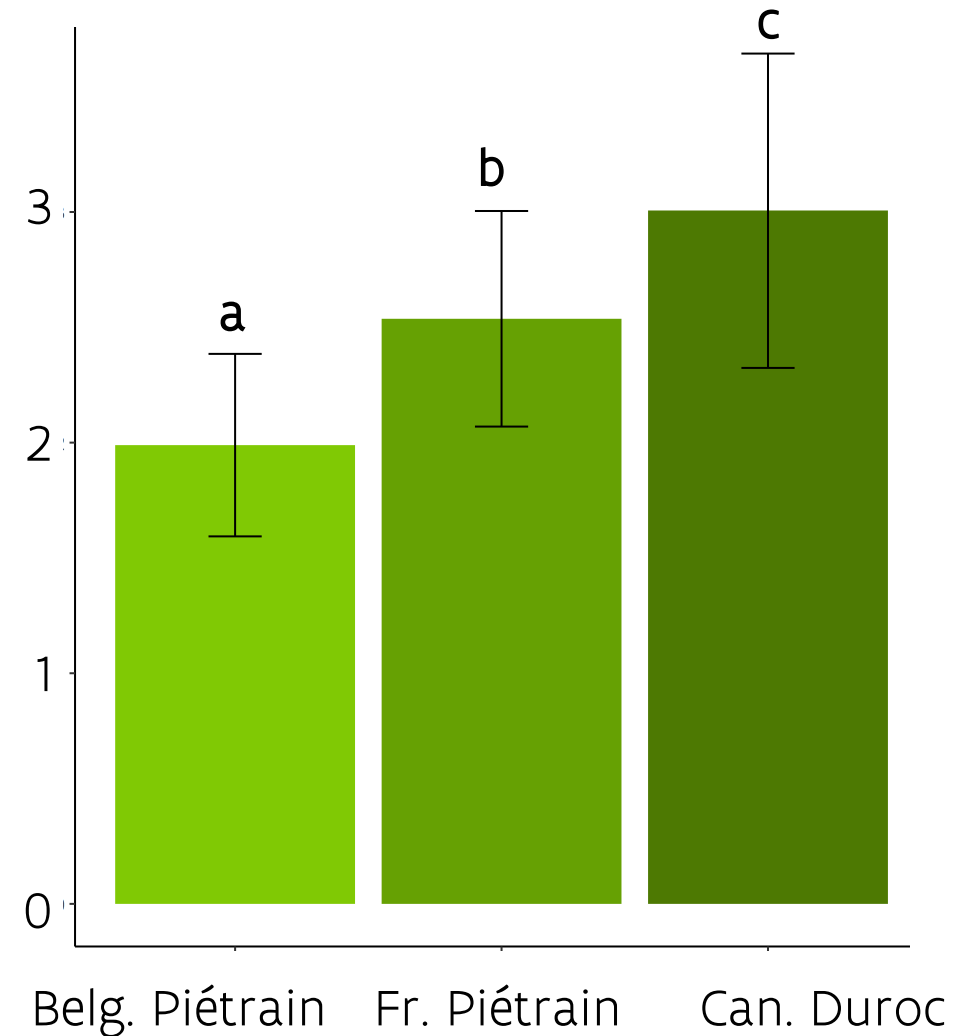
- Performance
- Carcass quality
- **Meat quality**
- **Sensory evaluation**

# Meat quality

Drip loss (%) ( $p < 0.001$ )



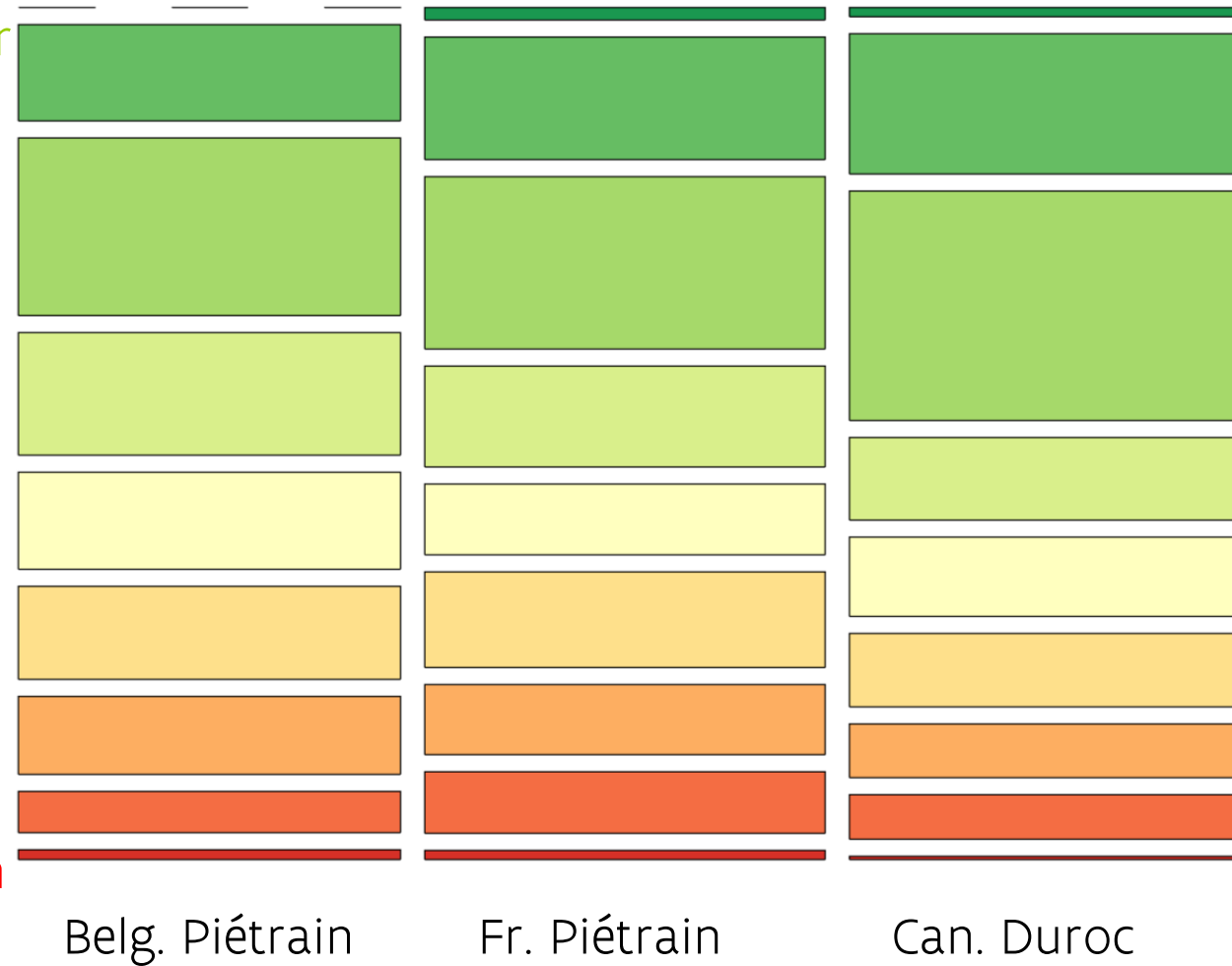
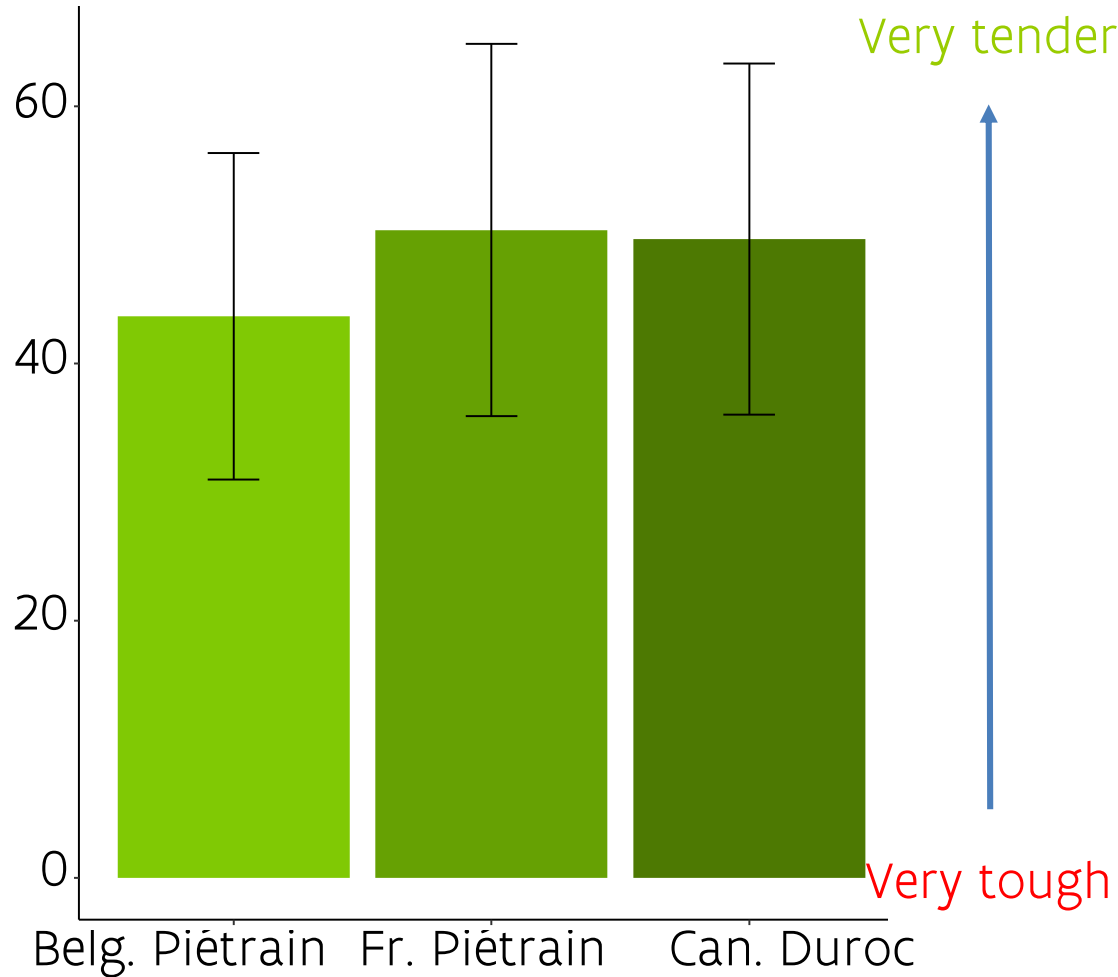
Intramuscular fat (%) ( $p < 0.001$ )



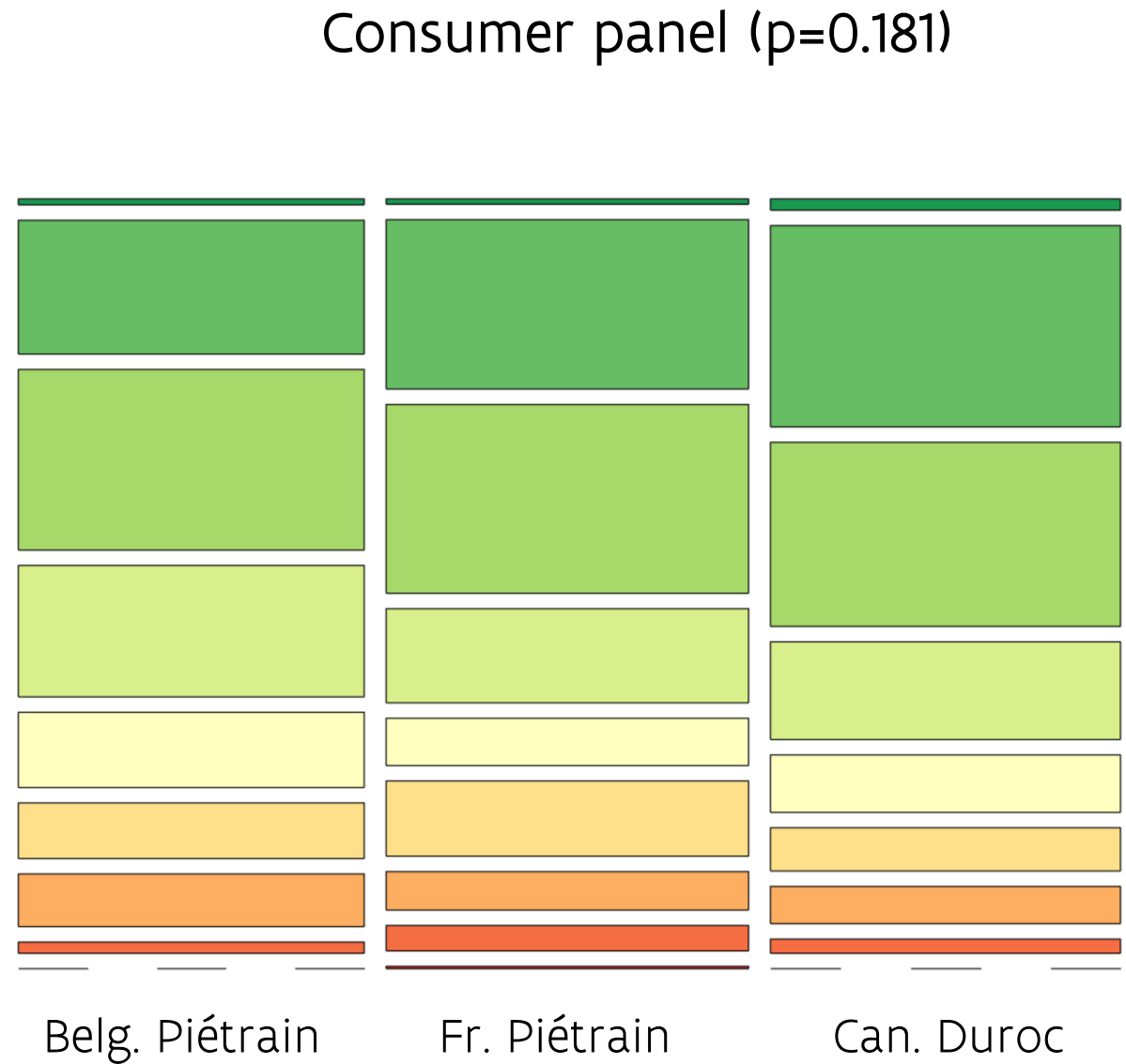
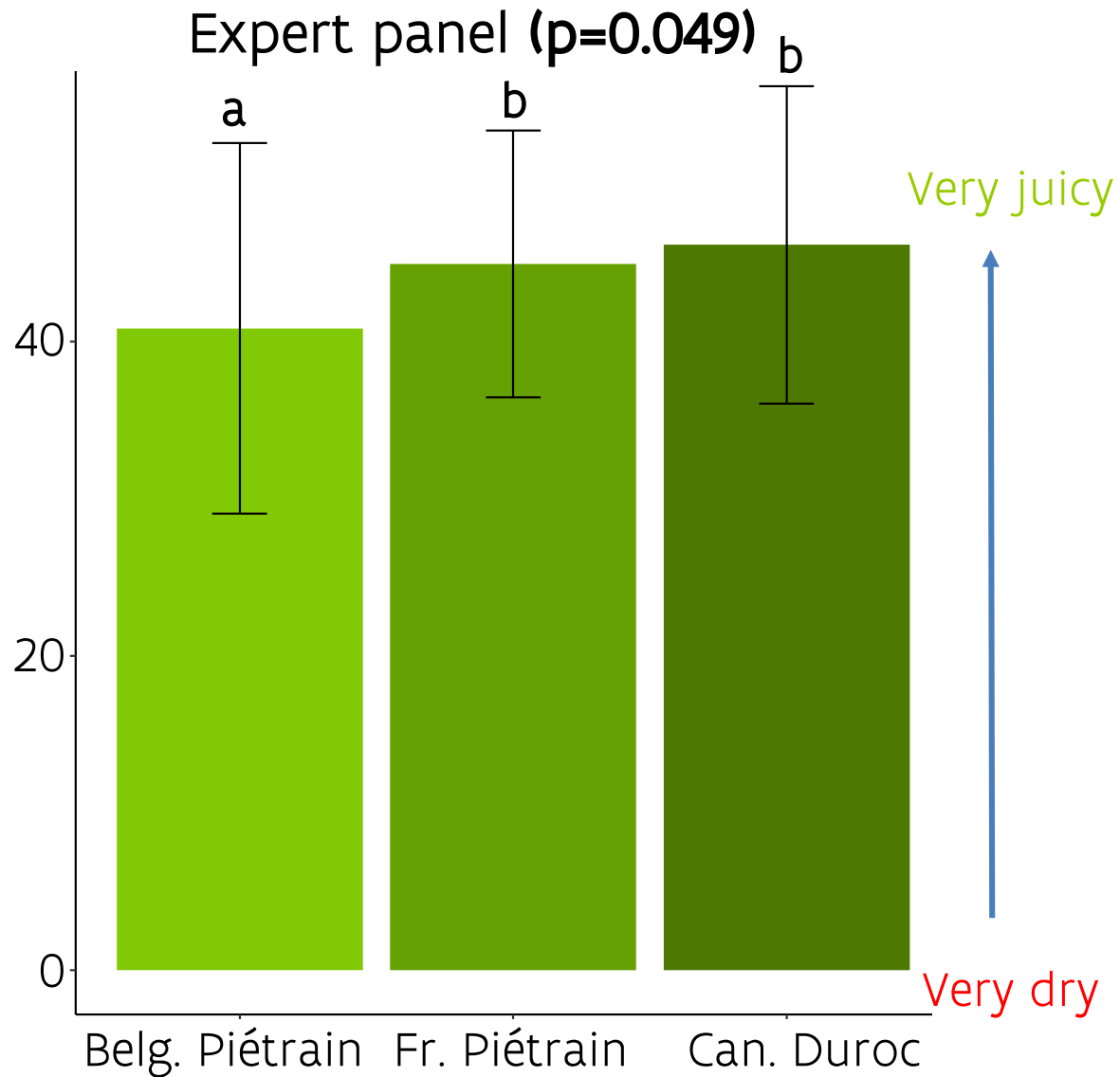
# Tenderness

Expert panel ( $p=0.060$ )

Consumer panel ( $p=0.117$ )



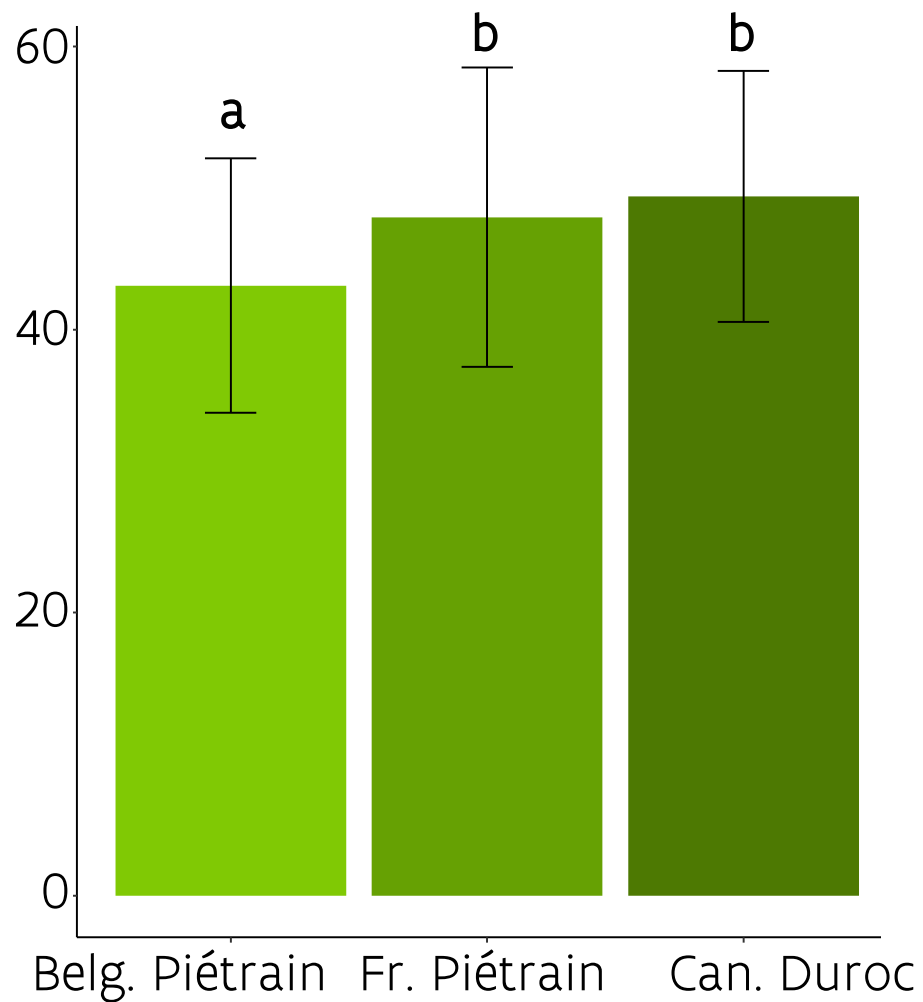
# Juiciness



# Overall liking

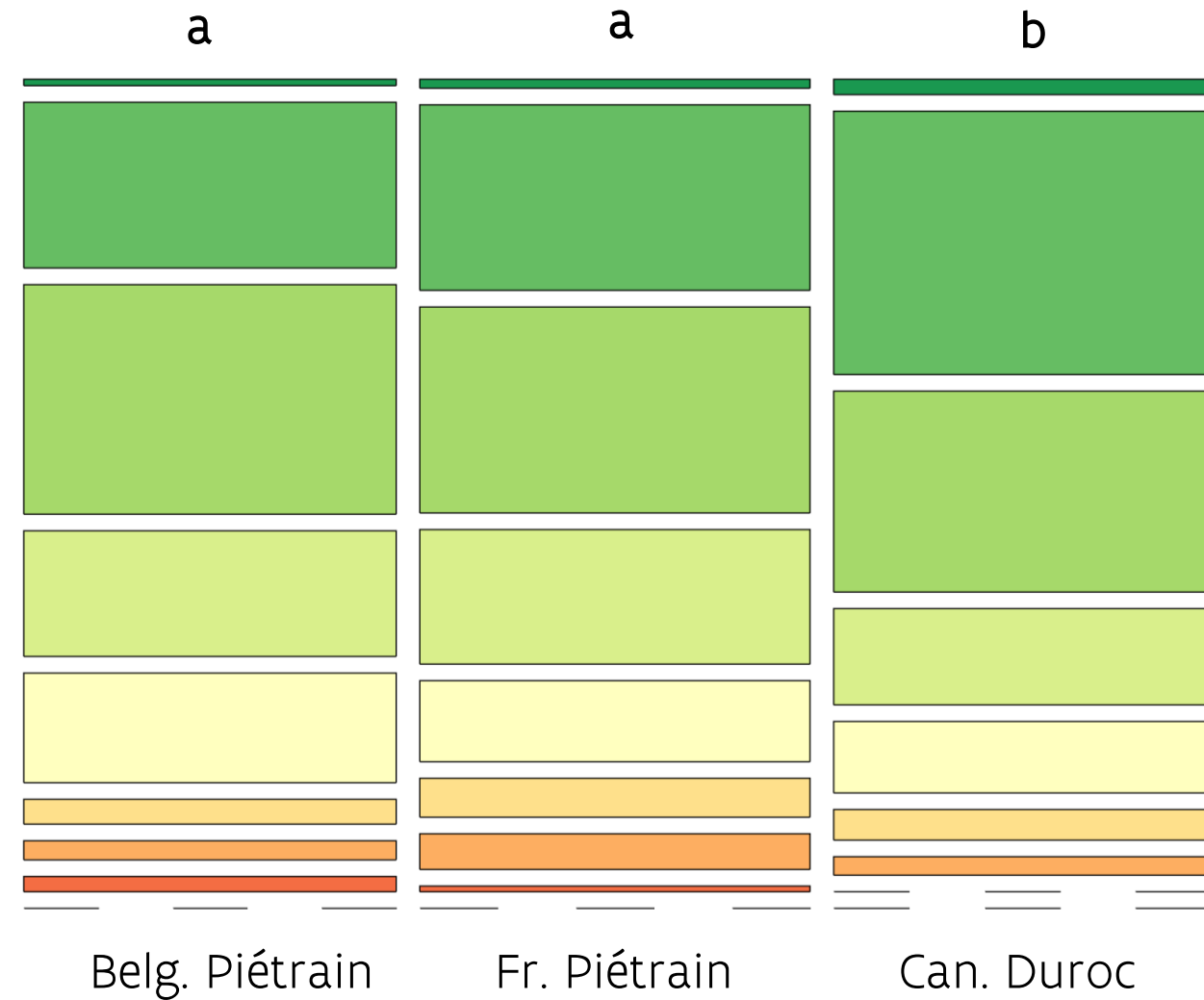
Expert panel (p=0.005)

Consumer panel (p=0.030)



High

Low





<b>Feed conversion ratio</b>		<i>FP</i>	<i>CD</i>	<i>BP</i>
<b>Carcass quality</b>	CD		FP	BP
<b>Drip loss</b>	BP		FP	CD
<b>Intramuscular fat content</b>	BP		FP	CD
<b>Expert panel</b>	BP			FP/ CD
<b>Consumer panel</b>		BP/FP		CD



# Conclusion

- It is possible to improve sensory meat quality
  - By changing sire line
  - But important to consider potential economical losses
    - Higher feed conversion ratio
    - Lower dressing %
    - Lower lean meat %

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