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PRACTICAL STRATEGIES TO IMPROVE PIG WELFARE DURING TRANSPORT AND AT SLAUGHTER

Luigi Faucitano

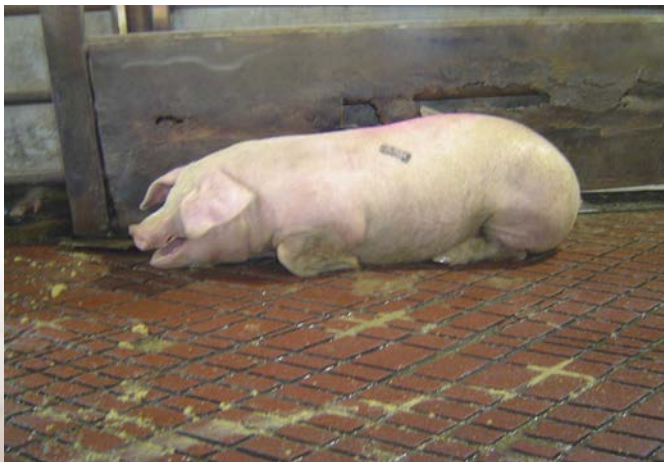
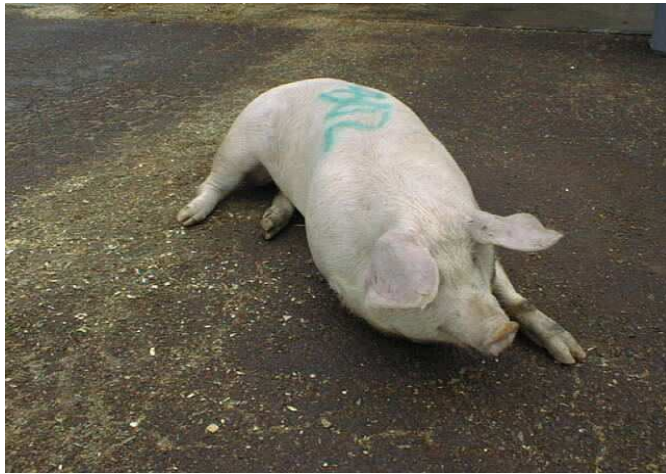
Canada

DEAD PIGS ON ARRIVAL AFTER TRANSPORT IN CANADA



CFIA, 2006, 2008

80,000 non-ambulatory pigs on arrival at the plant (BC SPCA, 2008)



- 30% loss of carcass value
- Bruises
- DFD or PSE pork
- Food safety

Ritter et al., 2009



Additional losses due to carcass damage and reduced meat quality



Shrink losses (\$5/pig;
Murray, 2001)

Reduced value due
to bruising (-
\$0.44; Riendeau,
2008)



WHO IS RESPONSIBLE FOR A PIG DEATH DURING TRANSPORT???



25 %



16 %



16 %

LOADING

✓ Design of the farm gate

▪ Size

✓ Ramp design

▪ Slope

▪ Material

✓ Handling

▪ Tools

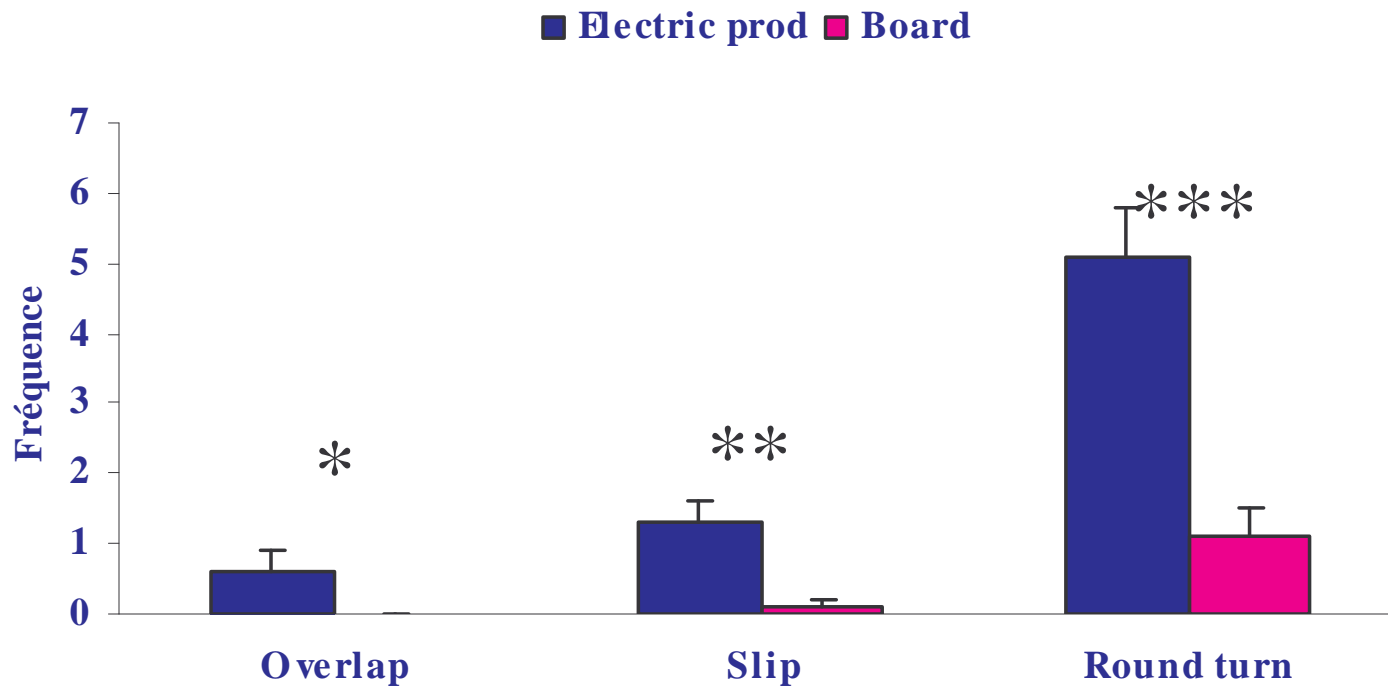
▪ Group size

▪ Handler position

▪ Training of loading crew



HANDLING WITH ELECTRIC PRODS



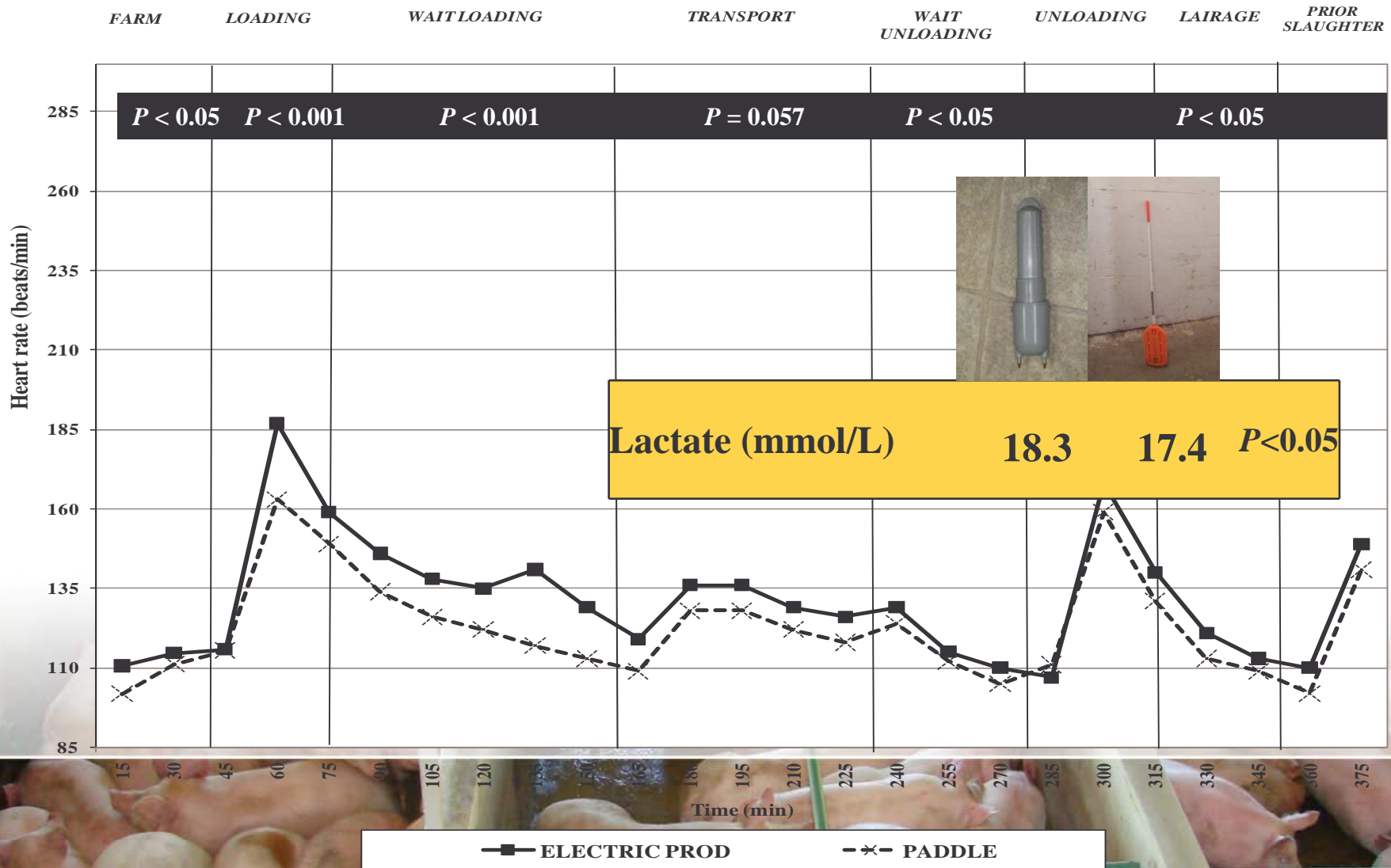


DO WE HAVE ALTERNATIVE TOOLS?





Heart rate from loading at the farm to slaughter in pigs handled with electric prod and paddle

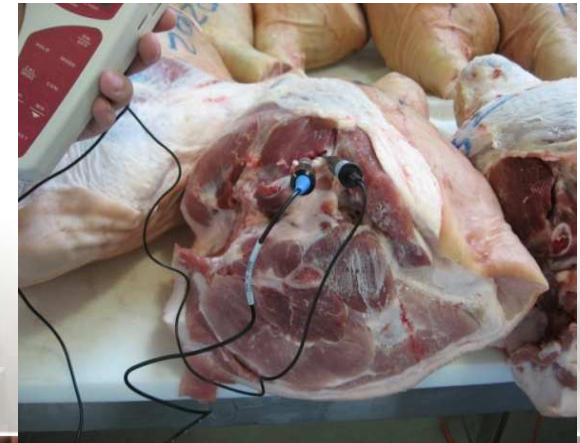


Correa et al., 2010

Effects of electric prod and paddles handling on carcass and pork quality



P
value



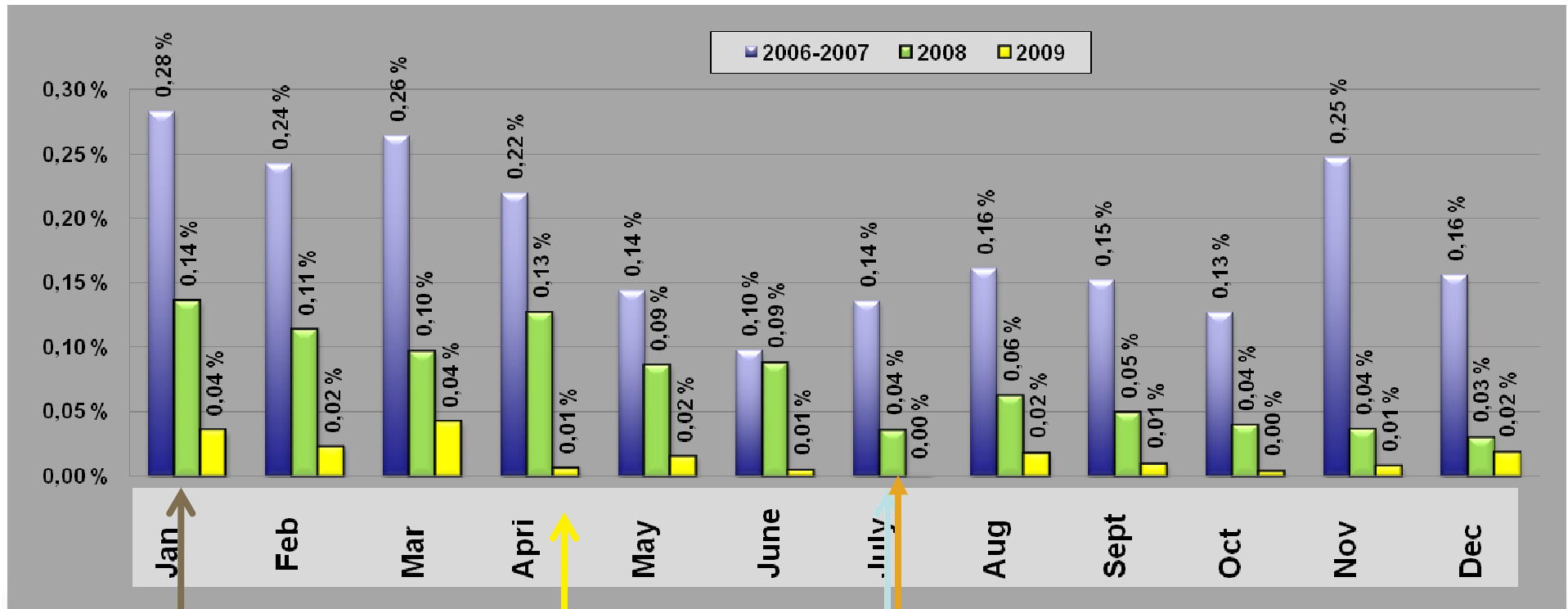
Skin damage (%)	32	18	$P < 0.05$
pHu (<i>Semimembranosus</i>)	6.00	5.91	$P < 0.01$
pHu (<i>Adductor</i>)	6.26	6.17	$P < 0.01$
Blood-splashed hams (%)	32.6	26.8	$P < 0.05$



Correa et al., 2010

PRACTICAL EXPERIENCE

Fatigued or downer pigs on arrival at the abattoir from 2006 to 2009



Unloading pigs without electric prods (2008)

Changing method of payment to transporters and handlers (calm loading; 100 pigs/h) (April 2009)

Application of recommendations (July 2008)

Improving loading facilities
Elimination of electric prods
Handlers training

TRANSPORT CONDITIONS IN CANADA

- Vehicle design

- Large load capacity
- Multiple compartments
- Multiple levels
- Differing ventilation patterns
- Both internal and external ramps

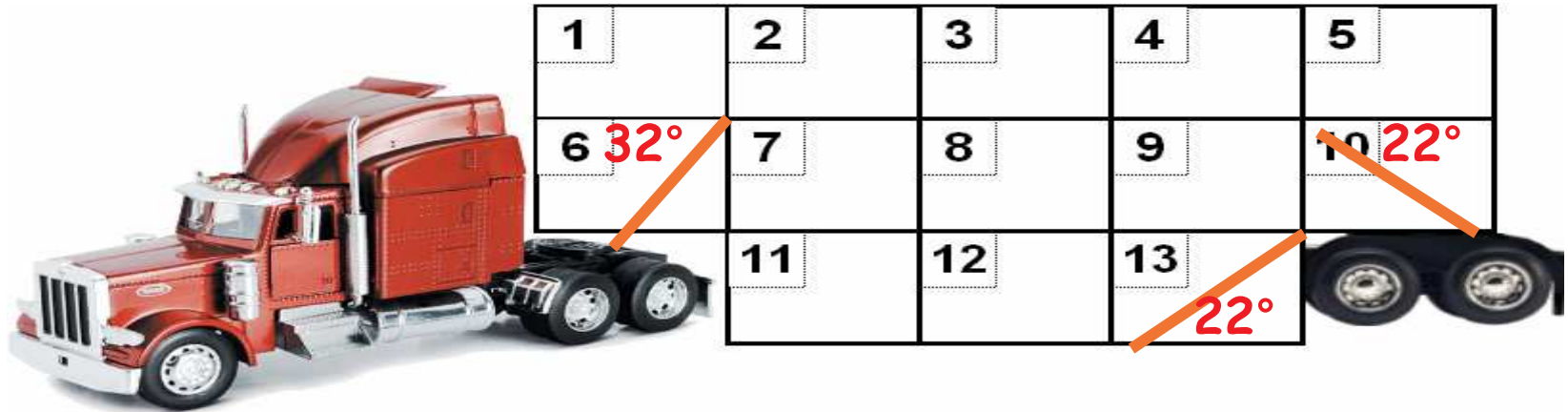


- Canadian conditions

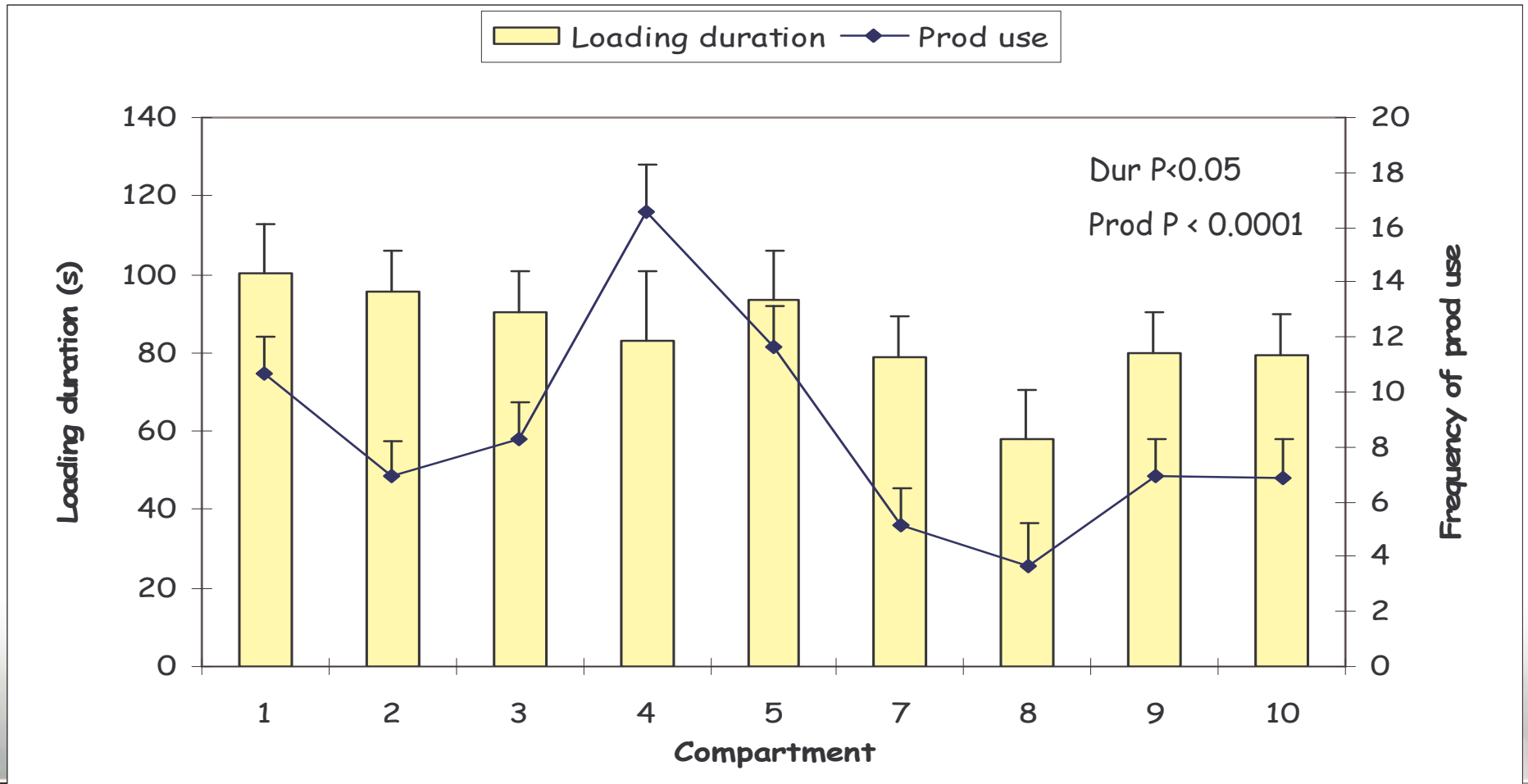
- Temperature extremes
- Distance to market



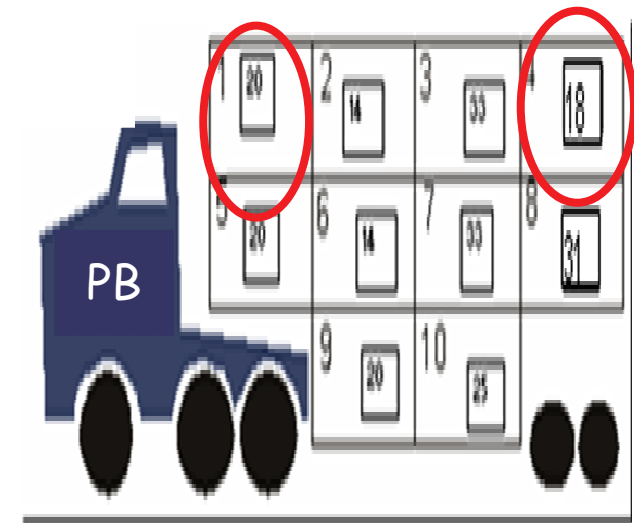
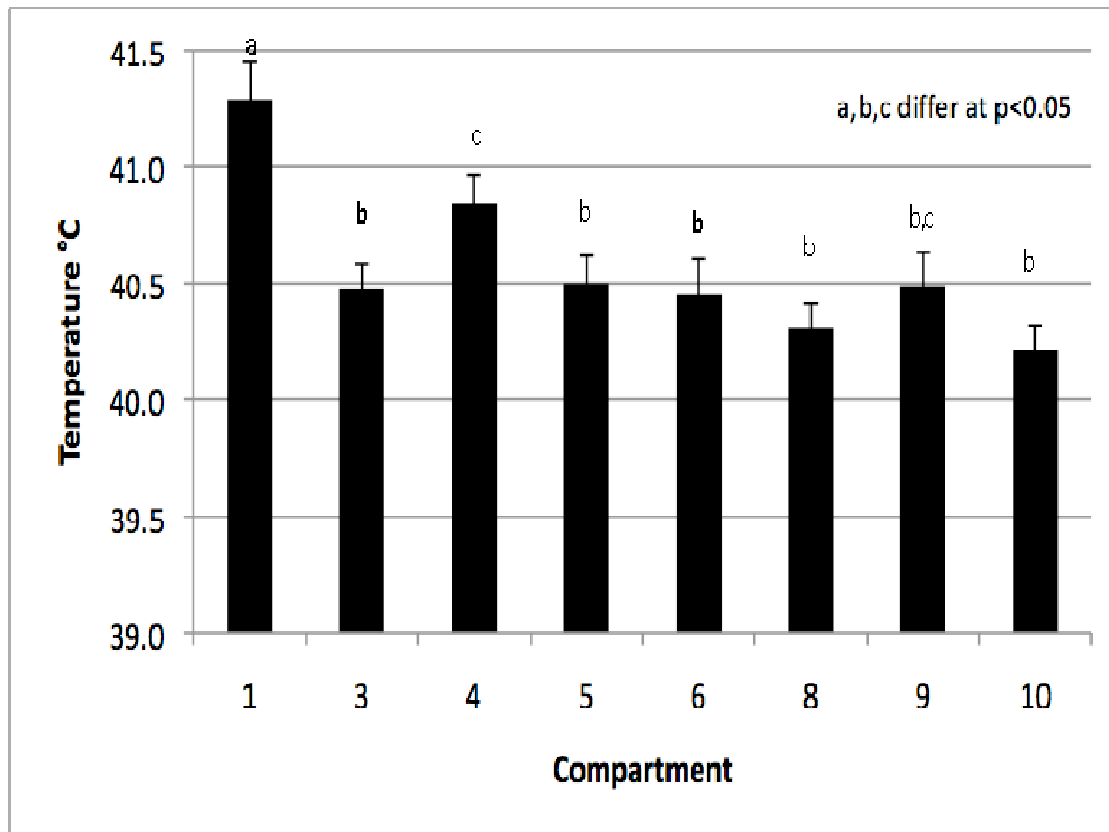
"POT-BELLY" TRAILER



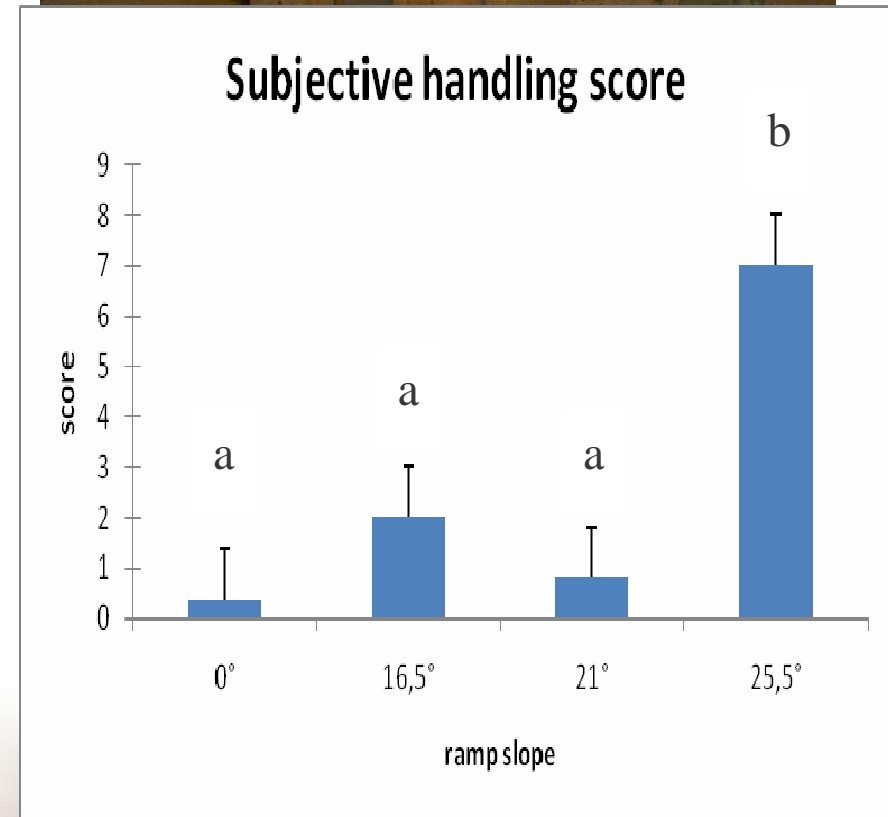
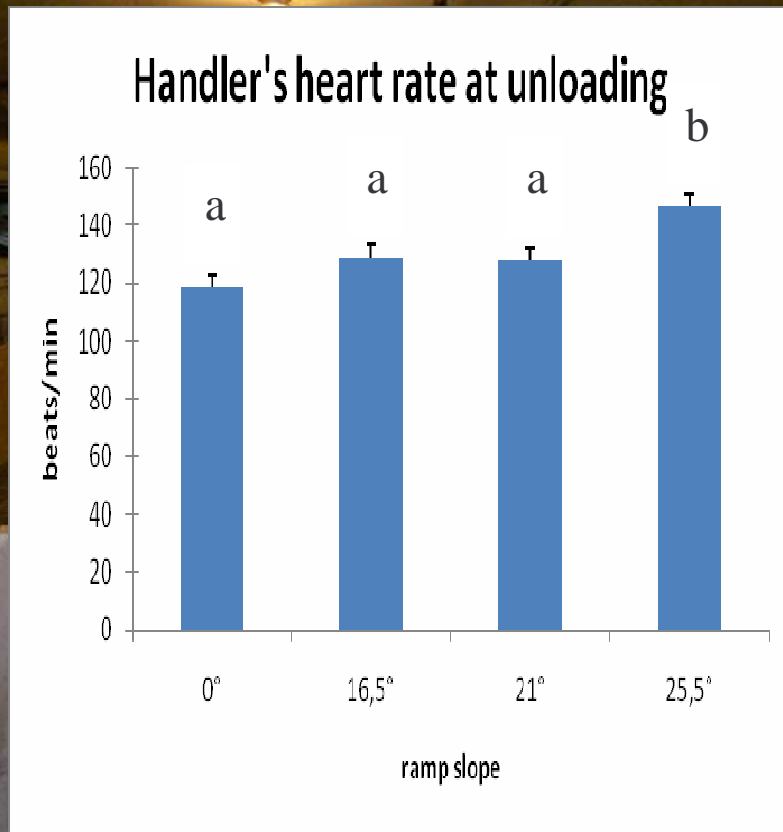
TRAILER DESIGN AND EASINESS OF HANDLING



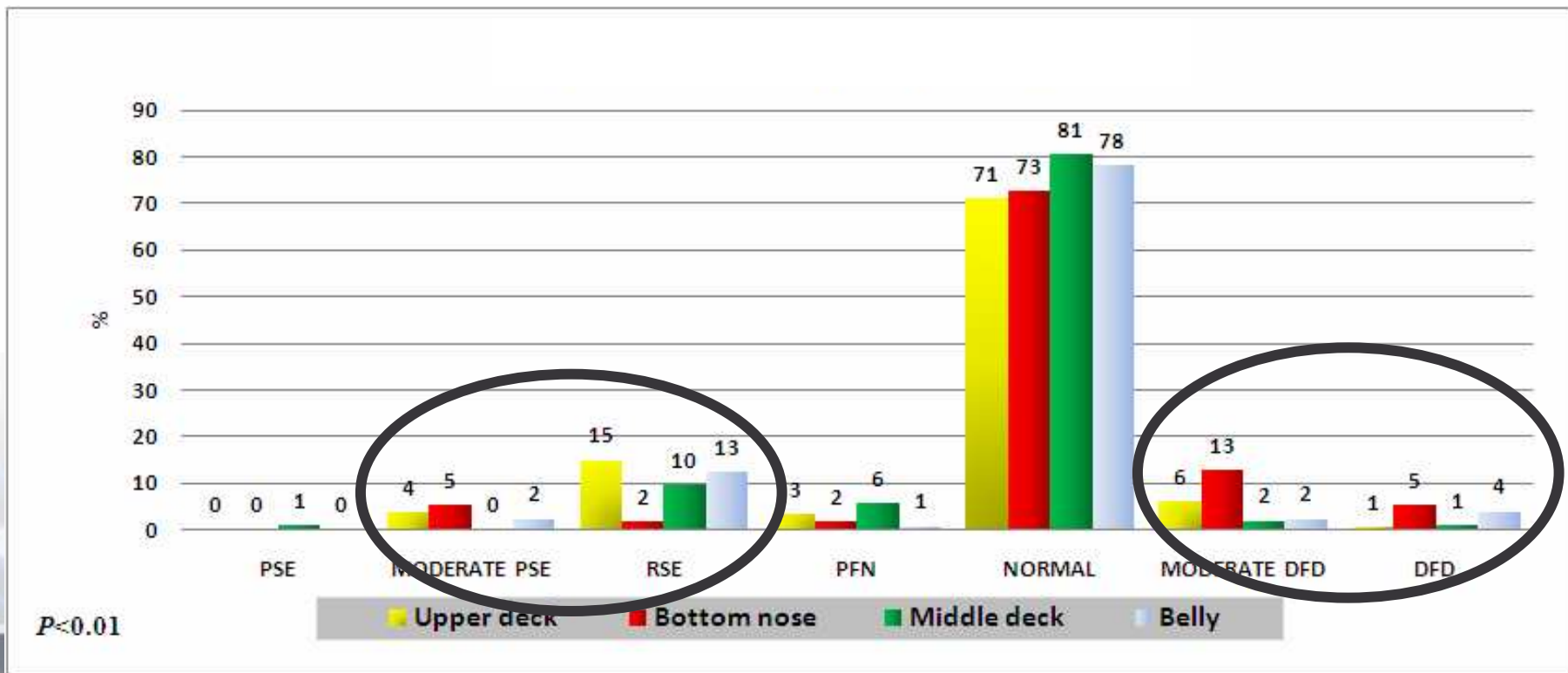
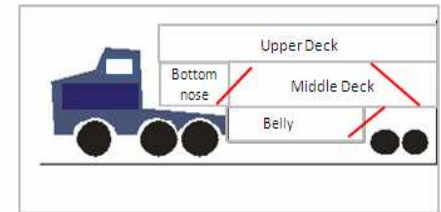
Body temperature variation by compartment in the PB trailer during wait at the farm in summer



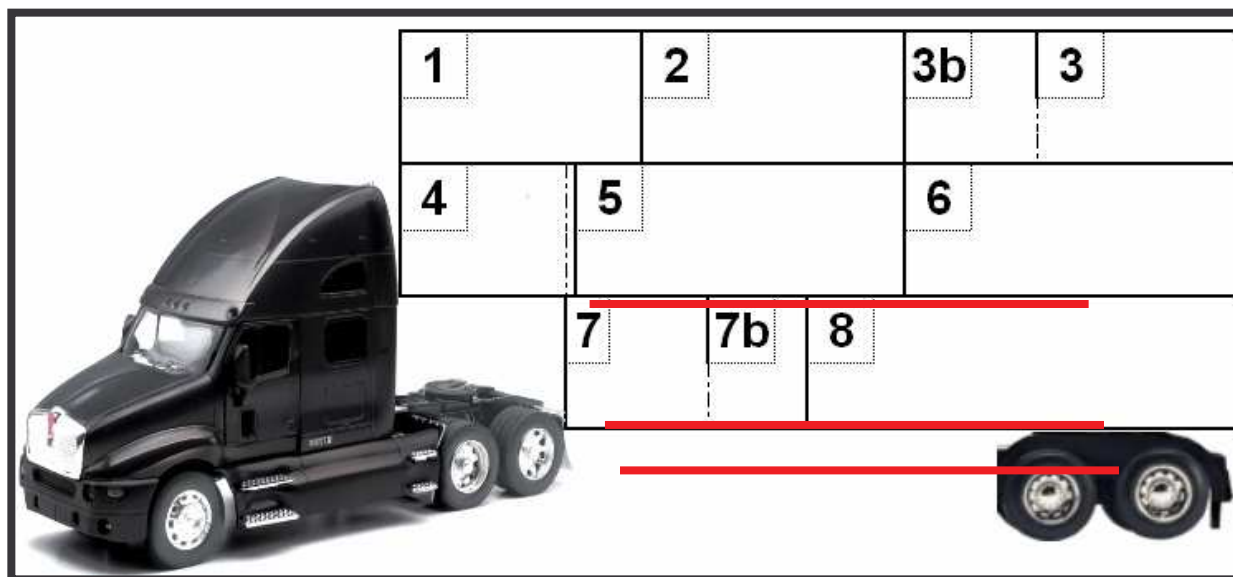
Effect of ramp slope on handler's heart rate and easiness of handling



Meat quality class distribution according to animal location in the PB trailer



IS THE FLAT-DECK TRAILER A SOLUTION?



- Reduction in animal losses (Ellis & Ritter, 2006)
- Less fatigued pigs at slaughter and better pork quality in short distance transportation (Vanelli et al., 2010)
- No difference in long distance transportation (Vanelli et al., 2010)



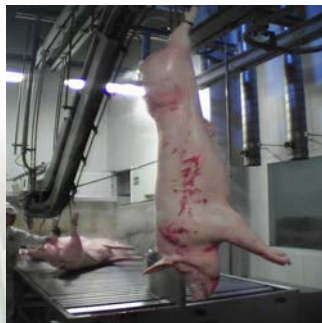
~~TRANSPORT~~

LAIRAGE

STUNNING

~~FARM~~

SLAUGHTER





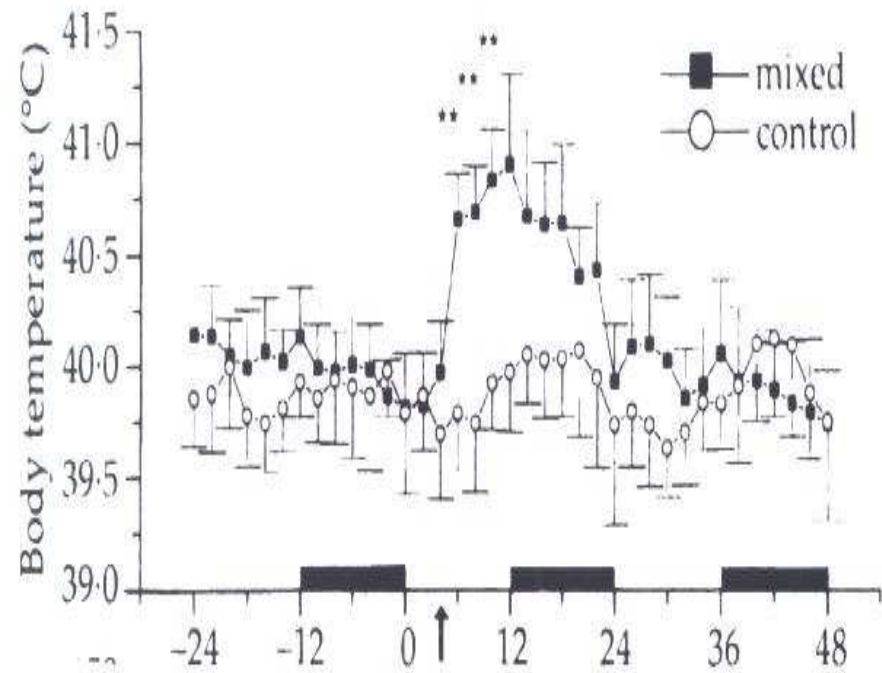
- Lairage conditions :

- ✓ Lairage time
- ✓ Mixing
- ✓ Environment

- Handling conditions:

- ✓ Handling tools
- ✓ Group size
- ✓ Facilities design

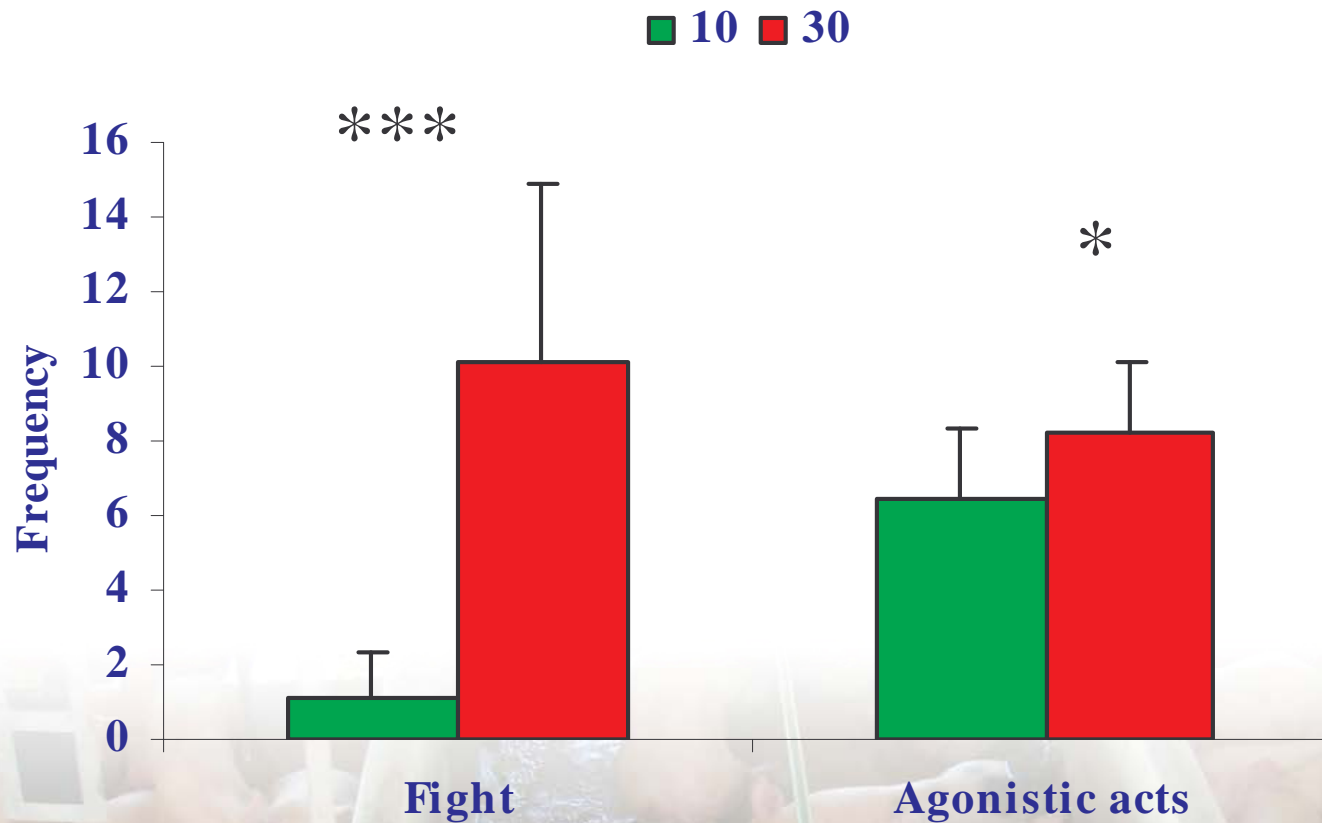
MIXING



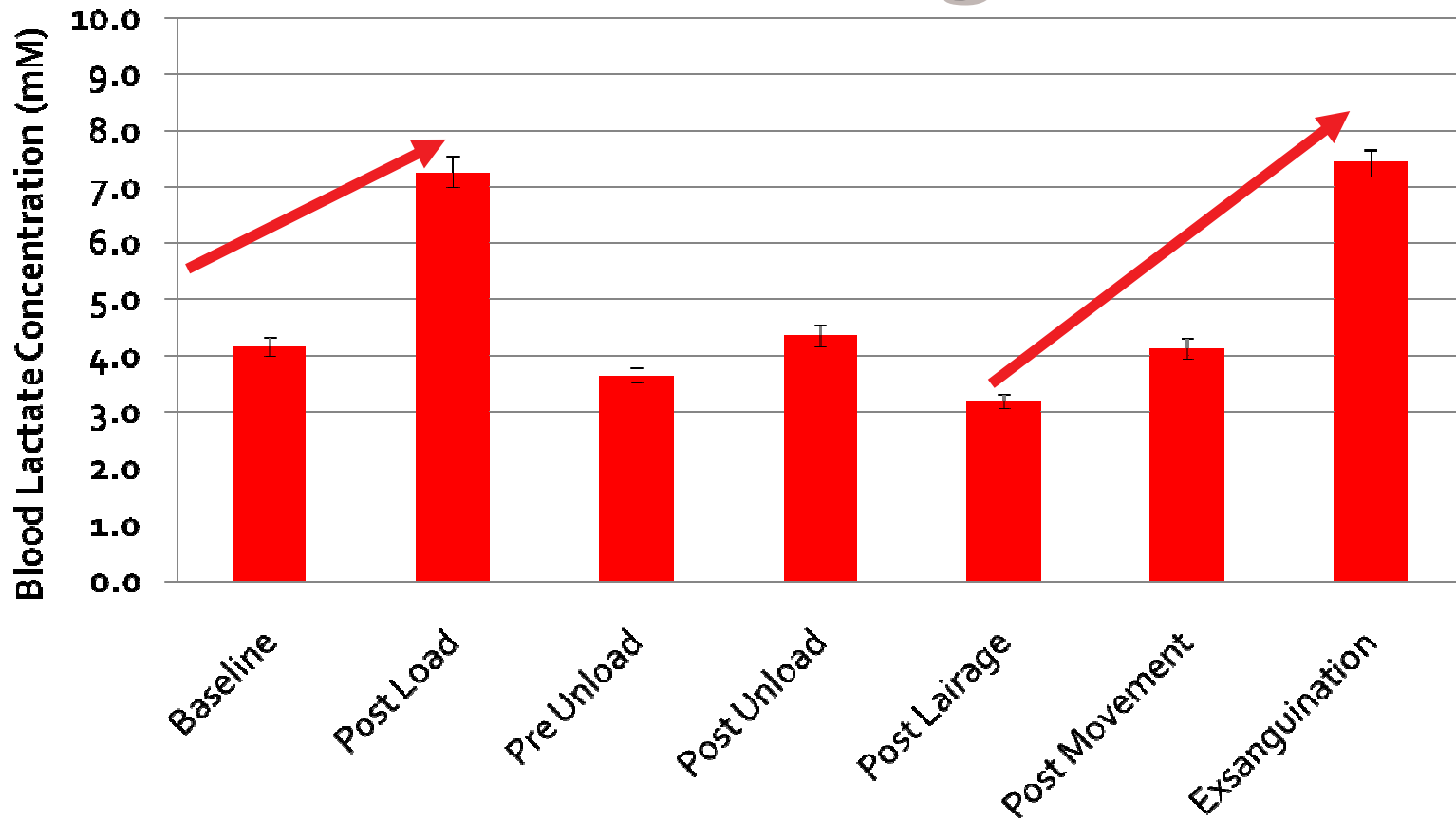
de Jong et al., 1999



EFFECT OF GROUP SIZE ON AGGRESSIVENESS



Lactate changes during marketing



Low Stress Blood Sampling



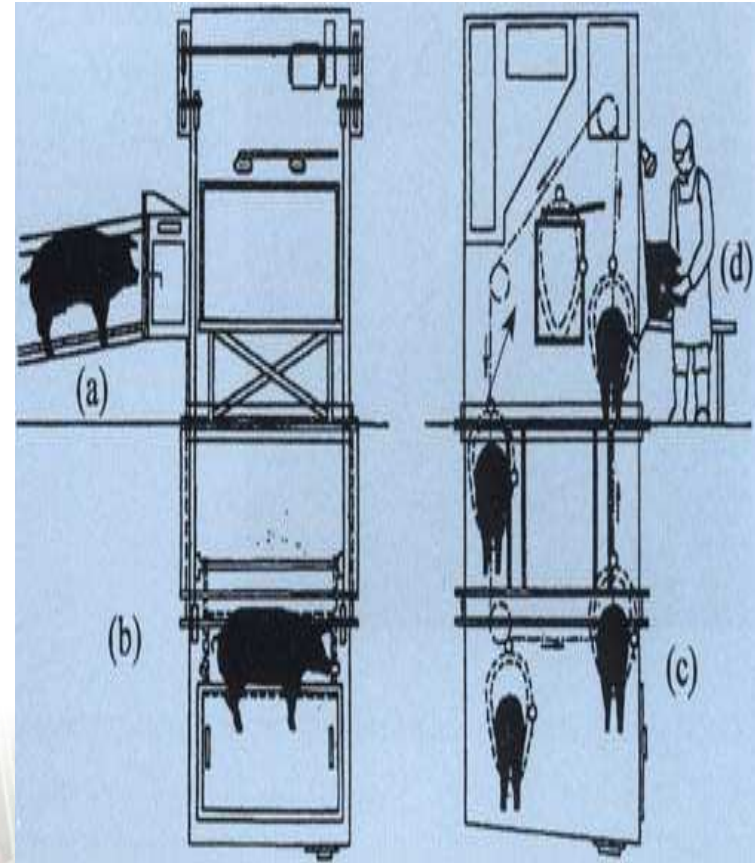
ANIMAL BEHAVIOUR IN THE CHUTE AND EXSANGUINATION LACTATE

Behaviour	YES (mM)	NO (mM)	P
Jamming	8.7	6.8	0.005
Vocalization	8.1	6.9	0.05
Jamming and/or back-up	8.1	6.7	0.03
Jamming, back-up, and/or electric prod	8.0	5.7	0.002

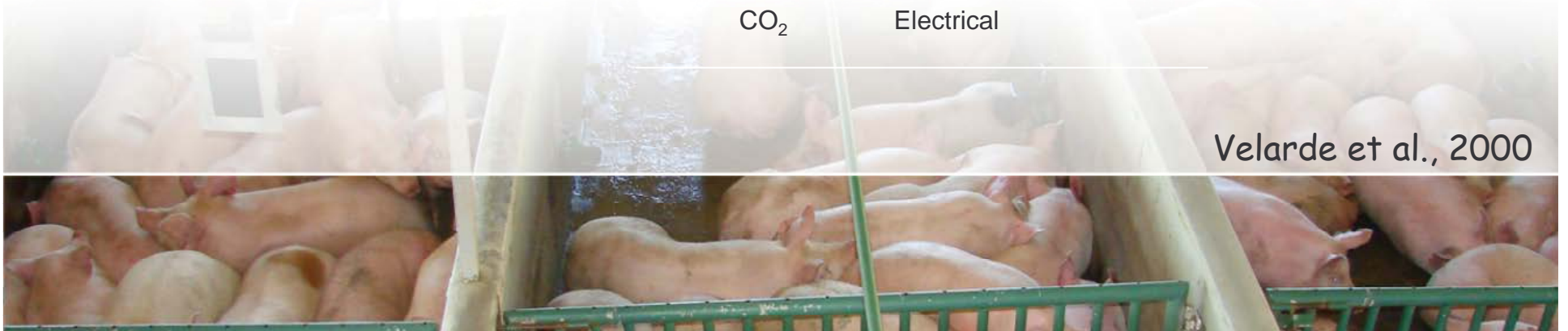
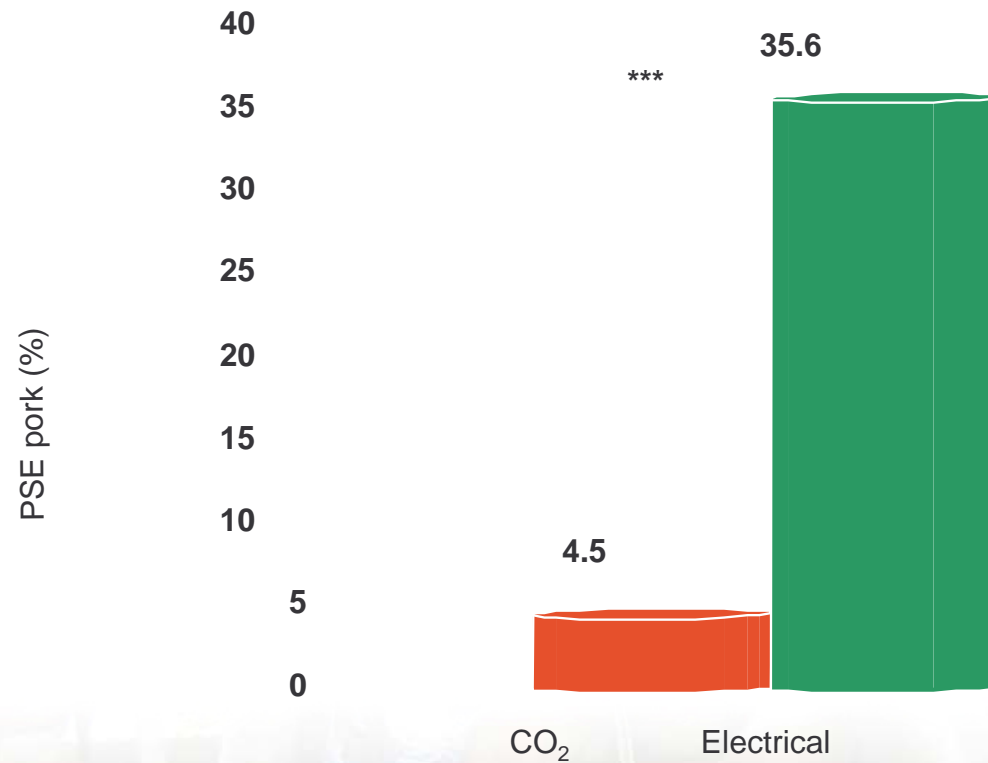


Edwards et al., 2010

PIG STUNNING SYSTEMS



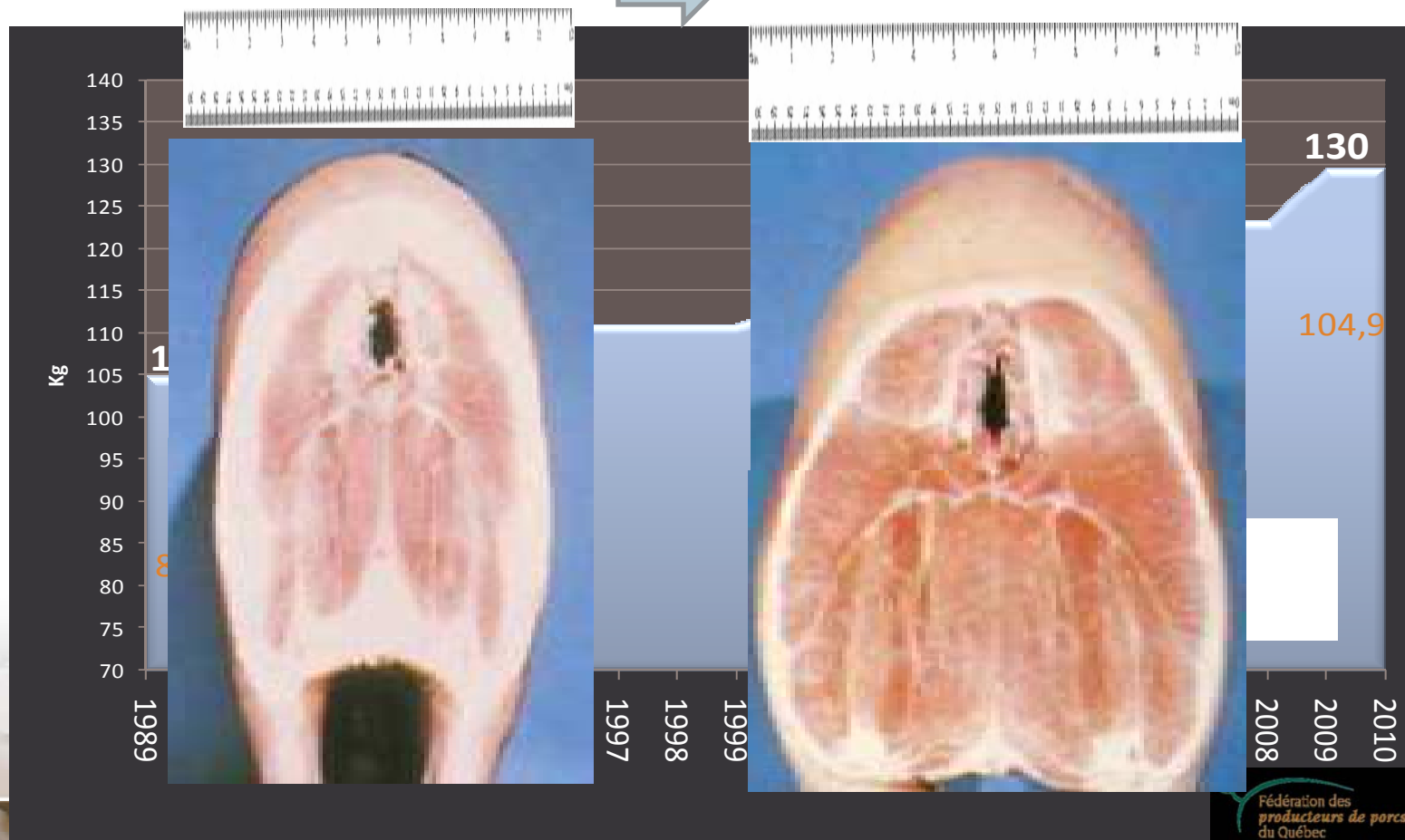
ELECTRICAL VS CO₂ STUNNING



Velarde et al., 2000

CHANGES IN PIG WEIGHT AND CONFORMATION

Change of slaughter weight through the years in Canada



Fédération des producteurs de porcs du Québec

ADAPTING THE FACILITIES TO THE TODAY PIG

Liveweight	Temperature			
	< 16°C	16-23°C	24-29°C	> 29°C
	Density (m ² /pig)			
115 Kg	0.40	0.43	0.46	0.50
123 Kg	0.43	0.46	0.50	0.54



CONCLUSIONS





THANK YOU!