

Generalitat de Catalunya Government of Catalonia

# Animal welfare risk assessment during transport of pigs

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### INTRODUCTION

Transport is a critical period for the welfare of the animals because they are exposed to a variety of stressors that may impair their ability to cope with the environment.

### OBJECTIVE

To identify major risks affecting animal welfare in pigs transported less than 8h to the slaughterhouse during warm climatic conditions.

Table 1. Principles and criteria of animal welfare.

Principles	Criteria
Good feeding	1. Absence of prolonged hunger
	2. Absence of prolonged thirst
Good housing	3. Comfort around resting
	4. Thermal comfort
	5. Ease of locomotion
Good health	6. Absence of injuries
	7. Absence of disease
	8. Absence of other pain
Appropiate behaviour	9. Expression of social behaviours
	10. Expression of other behaviours
	11. Good human-animal relationship
	12. Positive emotional state

### **MATERIALS AND METHODS**

A comprehensive list of potential hazards was developed and scored based on their: severity, duration, likelihood of adverse effect and probability of exposure. Five experts were asked to score the different factors and scoring was then discussed within the panel. The adverse effect of the hazards was evaluated taking into account the 12 criteria of animal welfare developed by the Welfare Quality<sup>®</sup> Project (Table 1). Hazard magnitude and risk were calculated as follows:

Magnitude = Severity score x [Duration (% of 1 month)/100]

Risk Estimate = Magnitude x (Likelihood of adverse effect/100) x (Probability of Exposure/100)

### RESULTS

Figures 1 and 2 show the most important hazards associated to management and facilities during short transport of pigs to the slaughterhouse in warm conditions.

#### Figure 1.Management Risk estimate 0.2 0.4 0.1 0.3 Hazards-Animal welfare criteria Lack of monitoring during transport-Disease Magnitude







1.5 1.8 0.6 0.9 0.3 .2 Magnitude





Overcrowding (<0.42 m2/100kg)-Disease Inadequate food quantity for the number of animals-Injuries Absence of sufficient amount of enrichment material-Injuries Mixing unfamiliar animals in the groups-Disease Mixing unfamiliar animals in the groups-Injuries Inappropriate handling (hitting, shouting)-Injuries No plans for emergency-Disease No plans for emergency-Injuries Stationary vehicle due to delay in traffic operation-Disease Uncleanliness of vehicle and insufficient desinfection-Disease

Too long fasting (>18h)-Disease

### **Figure 2. Facilities**

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### Hazards-Animal welfare criteria

Ventilation apertures design-Disease Ventilation apertures distribution-Disease Lack of alert system in the driver compartment-Disease Lack of sensors of Ta and HR in animal compartment-Disease Ventilation rate lower than 106m3/h per 100 kg LW-Disease

## 1.2 1.8 0.3 1.5 0 0.6 0.9

Lack of forced ventilation-Disease Too low deck height (<90cm)-Disease Inadequate structure of sides in the lift-Injuries Slippery floor surace in the lift-Injuries Inter-cleat distance >20 cm on centers, missing cleat-Injuries Slippery floor surface in the ramp-Injuries Too steep up/down ramp (>20°)-Injuries Inadequate floor condition in the driveway-Injuries Slippery floor surface in the driveway-Injuries Inadequate structure of sides in the driveway-Injuries Too narrow driveway (<90 cm)-Injuries

### CONCLUSIONS

- The hazards which affected the animal welfare criteria of absence of injuries and absence of disease had the higher magnitude and risk scores.

More reliable data sources in welfare are needed for animal purposes of risk assessment.

Magnitude