The ERA-Net ANIHWA project SOUNDWEL: determining vocal correlates of emotions in domestic pigs

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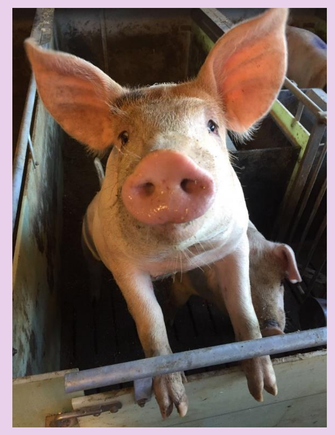


Introduction

It has been suggested that vocal correlates of emotions might be a convenient non-invasive approach to assess welfare. Several studies have provided evidence for vocal indicators of emotional arousal and valence in pigs and other mammals. However, up to now, the use of vocalisation as welfare indicator is still limited. The first step in achieving this core objective of this project is to build a comprehensive database of pig vocalisations recorded in different emotionally loaded contexts.

Objectives

1. The SOUNDWEL project aims to develop a robust vocalisation recognition tool that will allow a fine-tuned real-time recognition of pig emotions in farm living conditions and in slaughter context by using state-of-the-art bioacoustics techniques. The ultimate objective is to develop a practical tool giving farmers a good overview of the emotional state of their animals.
2. The current study was aimed at collecting pig vocalisations produced in positive contexts, which are currently lacking from our database, and which are necessary to improve the validity of the tool. The contexts chosen for this study were a) repeated exposure to an enriched environment (assumed to be positive) and b) repeated exposure to a barren environment (assumed to be neutral/less positive).

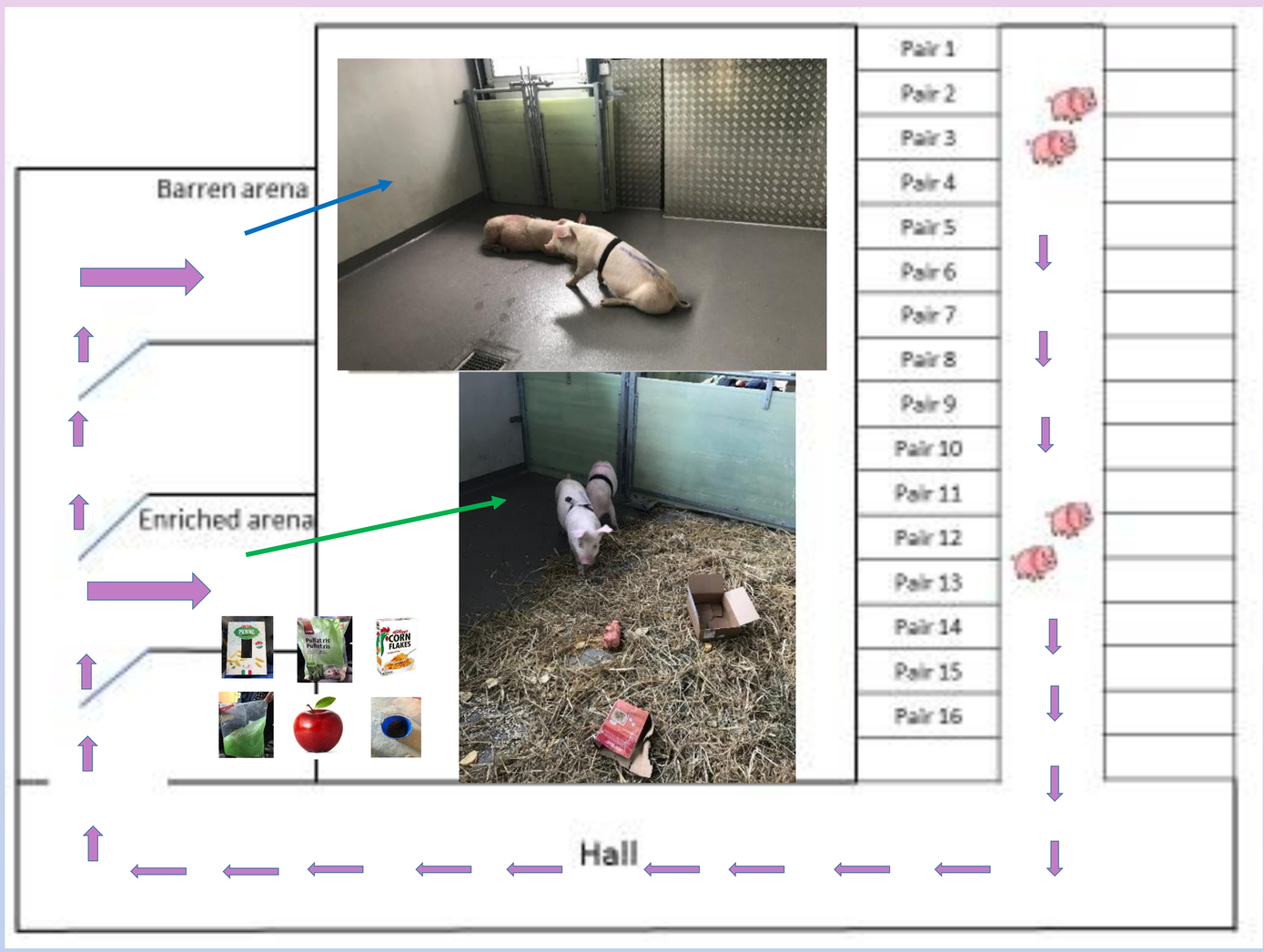
Methodology

Vocal expression of positive emotions

32 pigs (LYDD breed)
Housed in pairs
Food and water *ad libitum*

16 female and 16 male
4 different litters

All pigs experienced both conditions on alternative days:



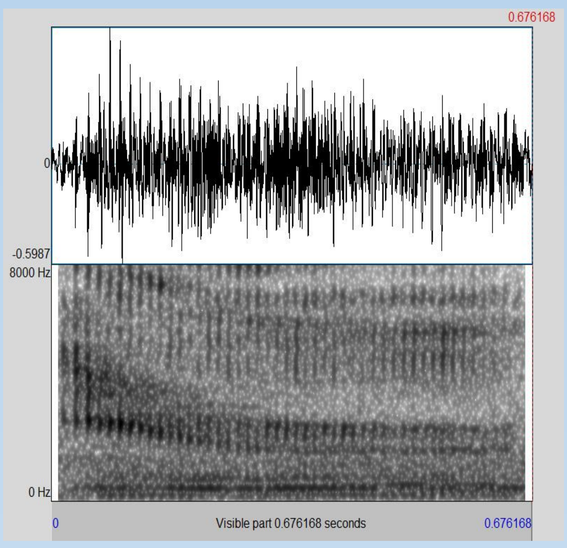
	Control	Positive
12.0 Kg	Barren test arena 10 minutes	Enriched test arena 10 minutes
	5 weeks habituation 2 weeks tests (video and audio recordings)	
63.5 Kg		

Recordings of vocalisations in barren arena

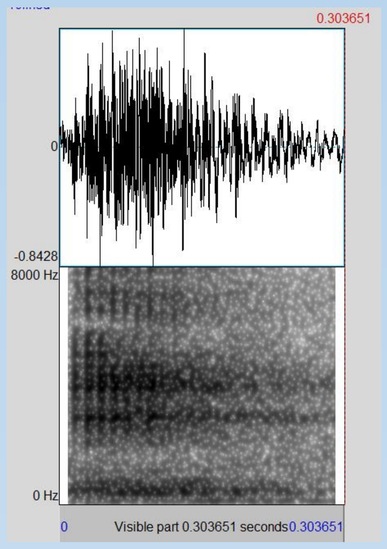
Recordings of vocalisations in enriched environment

Positive valence vocalisations

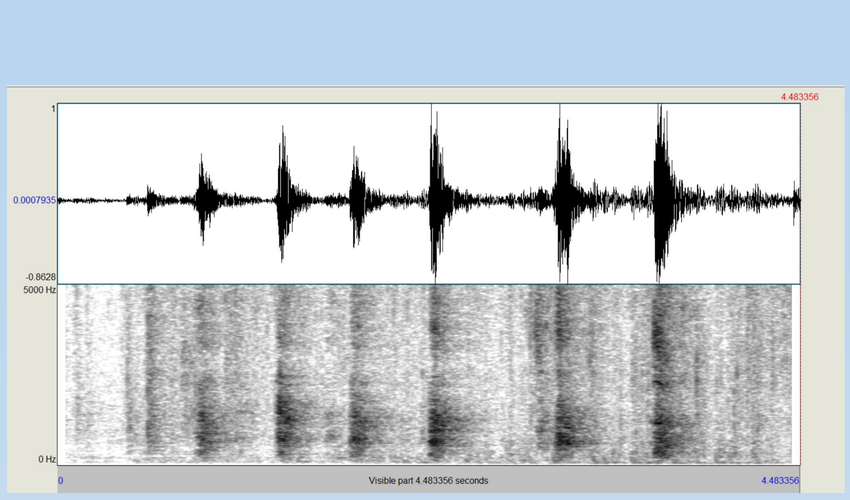
Behavioural and vocal profiles will be assessed in all pigs



Barren environment grunt



Enriched environment grunt



Bark sequence produce during pigs running

Additionally, we recorded pig barks while the pig pairs were herded from their home pens to the experimental arena and vice versa, which appears as a positive and high arousal context. These vocalisations and related behaviour will also be subsequently analysed.

Conclusions

1. These data and validation of acoustic correlates is an essential basis for later development of a vocalisation-based emotion recognition tool in subsequent stages of the SOUNDWEL project, which ultimately, will allow farmers to make better informed decisions in order to comply with requirements for high welfare standards.
2. We expect that vocal parameters produced by pigs under enriched test conditions will differ from parameters produced under barren test conditions.
3. We additionally expect the pig barks produced on the way to the experimental arena to differ from those produced on the way back to the home pen.

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