# Pigs' odour exploration behaviour - data from part 1 of project "Smell this"

SND-ID: 2023-82-1. Version: 1. DOI: https://doi.org/10.5878/kc64-wd49

## **Download data**

Study 1\_Data\_full.tsv (47.52 KB) Study 1\_Data\_sniffing\_overtime.tsv (14.29 KB) Study 1\_Dishabituation.tsv (14.29 KB) Study 2\_Data\_full\_RubRoll.tsv (24.37 KB) Study 2\_Individual\_data\_RubRoll.tsv (6.86 KB)

## **Associated documentation**

ReadMe.txt (6.28 KB) rorvang-m-v-et-al-2023.pdf (4.72 MB)

# **Download all files**

2023-82-1-1.zip (~4.83 MB)

## Citation

Vilain Rørvang, M. (2023) Pigs' odour exploration behaviour – data from part 1 of project "Smell this" (Version 1) [Data set]. Swedish University of Agricultural Sciences. Available at: https://doi.org/10.5878/kc64-wd49

#### Creator/Principal investigator(s)

<u>Maria Vilain Rørvang</u> - Swedish University of Agricultural Sciences, Department of Biosystems and Technology

# **Research principal**

Swedish University of Agricultural Sciences - Biosystems and technology

#### Principal's reference number

SLU.ltv.2023.4.4.IÄ-3

# Description

These studies are connected to the first part in a larger project called "Smell This". Study 1 aimed to a) identify which non-social odors pigs were able to detect and distinguish between, b) investigate the types of behavior expressed when exploring odors and, c) compare pigs' responses to the different odors to evaluate their interest in the odors. Growing pigs (N=192) of crossbred commercial breeds were enrolled in the experiment . Littermate pairs of opposite sex were tested in test pens with two odor insertion points in the pen wall. Twelve odors were tested (8 essential oils and 4 synthetic perfumes) in groups of three odors, with each pig pair tested once with one set of three odors (all possible orders of the three odors were tested on 24 pairs in total), always against a non-odor control (demineralized water). In a test, each of the three odors were presented during 3 trials in a row (a total of 9 trials per test; trial duration: 1 min; inter-trial breaks: 2 min; total test duration: 25 min). Response variables included: duration of sniffing, feeding-related behavior (licking, biting and rooting), agonistic behavior (biting, displacement and pushing) and no approach of the odor or control, recorded throughout each 1-min odor presentation.

Study 2 describes two behaviours unexpectedly observed in a study assessing pigs' reactions to odours and not previously reported in pigs. The study included the same 192 pigs of commercial breeds as study 1, tested with 12 different odours of non-social origin: 8 essential oils and 4 synthetic perfumes, plus an odourless control. The study found that, when exposed to odours, pigs display rubbing and rolling behaviour. Overall, essential oils (lavender, thyme, blood orange, aniseed, cedarwood, cinnamon bark, ginger, and pine) elicited more of the behaviours than the synthetic perfumes (vanilla, musk, apple, and jasmine) or the odourless control. All odours elicited rubbing whereas only four odours (blood orange, ginger, lavender, and pine) elicited rolling. This is the first report of rubbing and rolling as a response to an odour in pigs.

The experiment connected to the project were video recorded, and behavioral data was later extrated from the digital videos. All behavior was recorded separately for both the odor and the control points, separately, by an experienced observer blind to the specific odor tested. Study 1 - During each odor presentation, the total sniffing behavior of each pig (i.e., sniffing duration summed for the pig pair per odor presentation) was recorded using continuous sampling of each 1-min odor presentation. Habituation was defined as a significant decrease in sniffing of the odor between at least two of the three presentations of the same odor, and dishabituation was defined as a reinstatement of sniffing (significant increase in sniffing duration) when a new odor sample is presented. Feeding-related behavior and agonistic behavior as well as no approach were continuously recorded using behavior sampling. Feeding-related behavior was recorded as a collective duration for both pigs during each odor presentation (as for sniffing). Agonistic behavior was also collectively recorded for both pigs during each presentation as duration per odor presentation.

The data connected to Study 1 is comprised of three excel files.

1) The full data "Study 1\_Data\_full" contains all variables described above, split by odor vs control. Study 1\_Data\_full contains 20 columns, and 829 rows. Each row represents one pig pair (i.e., 2 pigs), hence this data is at pair level. Specific odor and odor type (essential oil (=E)or synthetic perfume (=P)) is given. Odour sequence refers to the different sequences of the three odors tested A-Y. Trial represents the odor presentation: 1st, 2nd, and 3rd. All behaviours are measured in seconds, a part from the "No approach" column which is a 1/0 variable = no approach or not.

2) The "Study 1\_Dishabituation" data sheet contains data used to investigate dishabituation. The data sheet contains 8 columns and 369 rows. The response variable "Sniff" is the same as in Data\_full but data is arranged differently in order to investigate 3rd vs 1st presentations. Odor and odor type is given as in Study 1\_Data\_full, and odor comparison is given. Trial refers to the presentation as in Study 1\_Data\_full, with only the 3rd and 1st presentations included. Comparison number a or b refers to which of the two comparisons within each pig pair, a being the first transition from the 3rd presentation of the first odor to the 1st presentation of the new (second) odor, whereas b refers to the 3rd presentation of the second odor, compared with the subsequent 1st presentation of the new odour (third). The order column illustrates the order of each variable.

3) Study 1\_Data\_sniffing\_overtime contains the variable sniffing of the odor, but with odors anonymised, and only odor number represented: odor 1, 2 and 3. The data sheet contains 6 columns, and 829 rows.

Study 2 - During each odor presentation, the total duration and frequency of rubbing and rolling behaviour as well as number of rolling attempts of each pig (i.e., all parameters on pair and individual

level) were recorded using behaviour sampling of each 1-min odor presentation.

The data connected to Study 2 is comprised of two excel files.

1) The full data "Study 2\_Data\_full\_RubRoll" contains all variables described above, split by odor vs control. This data contains 10 columns, and 829 rows. Each row represents one pig pair (i.e., sum of 2 pigs), hence this data is at pair level (pig pair is given in the first column). Specific odour and odour type (essential oil (=E)or synthetic perfume (=P)) is given. Presentation refers to the presentation number within one odour i.e., 1st, 2nd or 3rd presentation of the same odour. Order refers to which odour in the order of total three odours presented i.e., odour 1, odour 2, or odour 3. All behaviour durations are measured in seconds, and frequencies are measures as total occurrence for the pig pair, per presentation.

2) The "Study 2\_Individual\_data\_RubRoll" data sheet contains data used to investigate the behaviours at individual level. The data sheet contains 14 columns and 140 rows. This number of rows are lower due to exclusion of the many individuals not expressing the focus behaviours (rubbing or rolling or rolling attempt). Odour and odour type is given as in Study 2\_Data\_full\_RubRoll, and odour number refers to which odour out the total three (1, 2 or 3). Presentation refers to the same as for Study 2\_Data\_full\_RubRoll, the presentation number within one odour i.e., 1st, 2nd or 3rd presentation of the same odour. Age of the pig given in days, and breed (cross breeds), and sex (female or male) is further given.

# Data contains personal data

No

## Language

<u>English</u>

#### Data format / data structure

<u>Numeric</u>

<u>Text</u>

#### **Species and taxons**

Sus scrofa

# Data collection 1

- Mode of collection: Field/Intervention experiment
- Description of the mode of collection: All tests performed during this experiment were digitally recorded using video cameras, and all behavioural data presented in the files were subsequently extracted using appropriate behavioural recording methods.
- Time period(s) for data collection: 2022-02-01 2022-06-30
- Data collector: Swedish University of Agricultural Sciences
- Instrument: GoPro cameras

# **Responsible department/unit**

Biosystems and technology

# Contributor(s)

Birte L. Nielsen - Universities Federation for Animal Welfare, United Kingdom

Johanna Stenfelt - Swedish University of Agricultural Sciences, Department of Biosystems and Technology

Anna Valros - Faculty of Veterinary Medicine, University of Helsinki, Finland, Department of Production Animal Medicine

Anna Wallenbeck - Swedish University of Agricultural Sciences, Department of Animal Environment and Health

## Funding

- Funding agency: Swedish Research Council Formas
- Funding agency's reference number: 2020-01286

#### **Ethics Review**

Swedish Ethical Review Authority - Ref. 5.8.18-00862/2023

## **Research area**

Natural sciences (Standard för svensk indelning av forskningsämnen 2011)

Agricultural and veterinary sciences (Standard för svensk indelning av forskningsämnen 2011)

Animal and dairy science (Standard för svensk indelning av forskningsämnen 2011)

Farming (INSPIRE topic categories)

## Keywords

Agricultural and aquaculture facilities, Animal behaviour, Pig production, Animal housing, Animal welfare, Sensory enrichment

# Publications

Rørvang, M V., Schild, S.-L., Aa., Wallenbeck, A., Stenfelt, J., Grut, R., Valros, A., Nielsen, B L., (2023). Rub 'n' roll – pigs, Sus scrofa domesticus, display rubbing and rolling behaviour when exposed to odours. Applied Animal Behaviour Science. 266:106022 **DOI:** <u>https://doi.org/10.1016/j.applanim.2023.106022</u>

Rørvang MV, Schild S-LA, Stenfelt J, Grut R, Gadri MA, Valros A, Nielsen BL and Wallenbeck A (2023) Odor exploration behavior of the domestic pig (Sus scrofa) as indicator of enriching properties of odors. Front. Behav. Neurosci. 17:1173298. doi: 10.3389/fnbeh.2023.1173298 **DOI:** <u>https://doi.org/10.3389/fnbeh.2023.1173298</u>

# Accessibility level

Access to data through SND Data are freely accessible

Use of data Things to consider when using data shared through SND

**Copyright** Swedish University of Agricultural University

License CC BY 4.0

## Versions

Version 1. 2023-06-26

# Homepage

https://www.slu.se/en/departments/biosystems-technology/current-projects/ongoing/DoB/stallfunktionoch-komfort/lukta-pa-det-har/

## Contacts for questions about the data

arkiv@slu.se Maria Vilain Rørvang mariav.rorvang@slu.se

#### **Download metadata**

DataCite DDI 2.5 DDI 3.3 DCAT-AP-SE 2.0 JSON-LD PDF Citation (CSL) File overview (CSV)

Published: 2023-06-26 Last updated: 2024-03-27