



University of
Natural Resources and
Life Sciences, Vienna



Department for
Sustainable Agriculture Systems

Division of Livestock Sciences
WG Animal Husbandry

Assessing fearfulness of gilts on farm:

Can **Qualitative Behaviour
Assessment**
add information to standardised
fear tests?

C. Pfeiffer, C. Leeb,
A. Gutmann & C. Winckler

Introduction



University of
Natural Resources and
Life Sciences, Vienna



Department for
Sustainable Agriculture Systems

Division of Livestock Sciences
WG Animal Husbandry

Fear is a negative emotional state triggered by actual danger, resulting in autonomic, hormonal and behavioural responses that allow an animal to react adequately in fear eliciting situations (JONES and BOISSY, 2011).

Temperament is defined as an expression of consistent behaviour of an individual in similar situations over time (REALE et al., 2007).

Introduction

- Biological mechanisms and processes disturbed
 - Physical and mental health affected
- Animal Welfare

Subsequent implications for farmers

- Performance (e.g. growth & reproduction) reduced
- Economic outcomes

Initiated by Austrian organic gilt breeders

- Focus on temperament (maternal ability) traits



University of
Natural Resources and
Life Sciences, Vienna



Department for
Sustainable Agriculture Systems

Division of Livestock Sciences
WG Animal Husbandry

Introduction Assessment of fear



University of
Natural Resources and
Life Sciences, Vienna



Department for
Sustainable Agriculture Systems

Division of Livestock Sciences
WG Animal Husbandry

- Standardised fear tests
 - Novel object test
 - Voluntary human approach
 - Tonic immobility
- Quantitative measures of behaviour

But QUALITATIVE aspects of behaviour?

Aims and hypotheses



University of
Natural Resources and
Life Sciences, Vienna



Department for
Sustainable Agriculture Systems

Division of Livestock Sciences
WG Animal Husbandry

- Identifying qualitative behavioural components during a voluntary human approach test
- Using **Qualitative Behaviour Assessment (QBA)**
- Latencies to approach and interact with an unfamiliar person are not related to qualitative components

Material & Methods



University of
Natural Resources and
Life Sciences, Vienna



Department for
Sustainable Agriculture Systems

Division of Livestock Sciences
WG Animal Husbandry

Animals and farms

- 41 F1 gilts (Large White x Landrace)
3 Schwäbisch Hällisch gilts
- On average seven months old
- Pregnant/ not pregnant
- Two organic gilt breeding farms

Methods

- Voluntary human approach test (HEMSWORTH et al., 1981; 1989)
Quantitative and qualitative assessment

Voluntary human approach test



University of
Natural Resources and
Life Sciences, Vienna

Department for
Sustainable Agriculture Systems

Division of Livestock Sciences
WG Animal Husbandry

Quantitative

- Latency to enter the area within 100/50cm radius (AT100/AT50)
- Time spent within this area (ET100/ET50)
- Latency to first interaction with the unfamiliar person (TAP)
- Number of physical interactions with the unfamiliar person (NI)

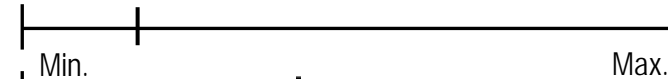


60

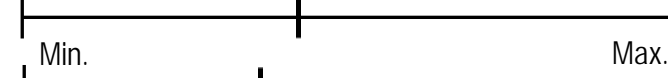
Qualitative

- 12 fixed terms

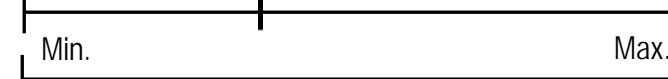
Active



Fearful



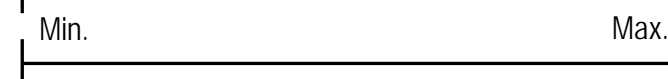
Agitated



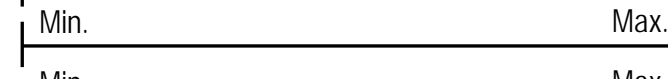
Explorative



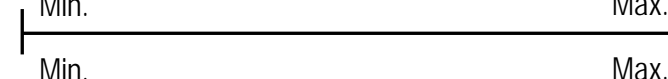
Stressed



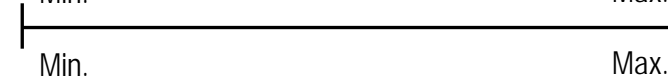
Nervous



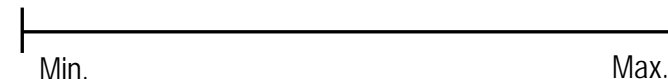
Confident



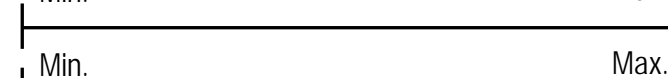
Inquisitive



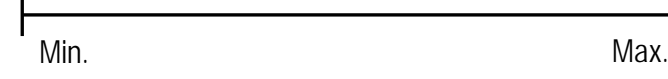
Friendly



Relaxed



Calm



Timid



Material & Methods



University of
Natural Resources and
Life Sciences, Vienna



Department for
Sustainable Agriculture Systems

Division of Livestock Sciences
WG Animal Husbandry

Statistics

- PASW 18
- Principle component analysis (PCA)
- Spearman rank correlation

Results Quantitative behaviour assessment



University of
Natural Resources and
Life Sciences, Vienna



Department for
Sustainable Agriculture Systems

Division of Livestock Sciences
WG Animal Husbandry

| | AT100 (sec) | ET100 (sec) | AT50 (sec) | ET50 (sec) | TAP (sec) | NI (n) |
|---------------------|--------------------|--------------------|------------------|--------------------|---------------------|------------------|
| Mean (\pm SD) | 30.7 \pm 40.2 | 13.4 \pm 31.7 | 60 \pm 56.6 | 11.7 \pm 20.3 | 105.5 \pm 56.0 | 1.3 \pm 1.2 |

n=44

→ Substantial variation in gilts' behaviour concerning approach time and interaction with the unfamiliar person

Results Qualitative Behaviour Assessment

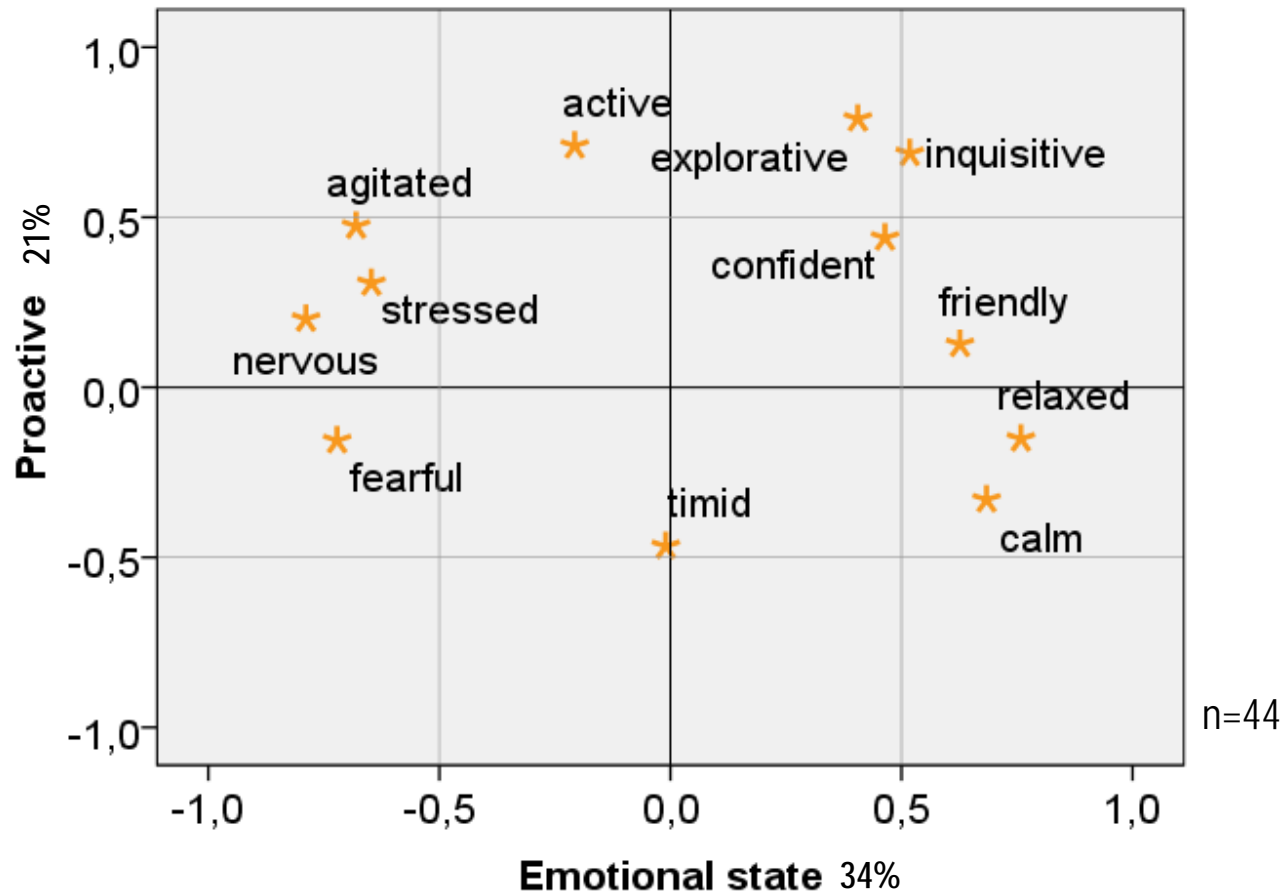


University of
Natural Resources and
Life Sciences, Vienna

Department for
Sustainable Agriculture Systems

Division of Livestock Sciences
WG Animal Husbandry

→ 3 dimensions explaining 66.8% of the variance



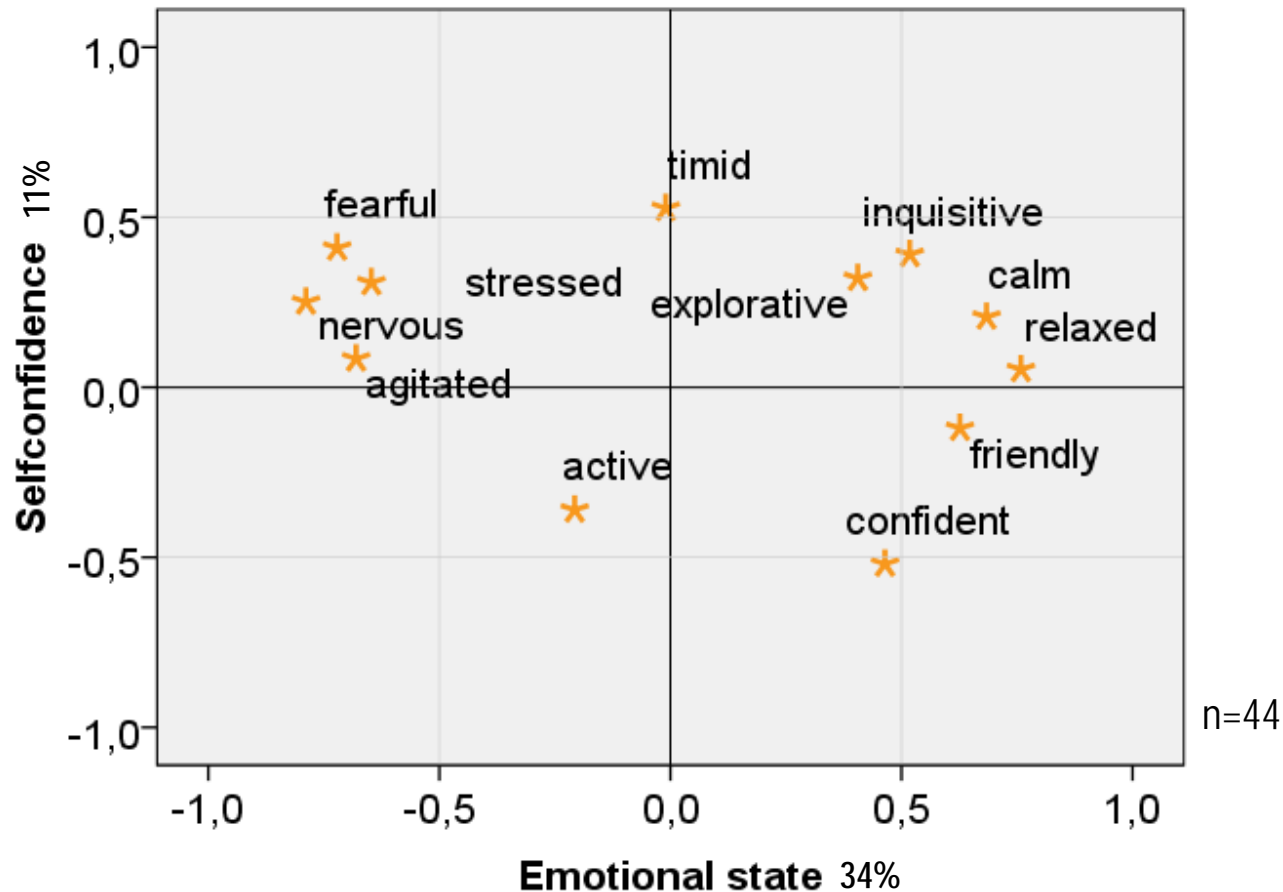
Results Qualitative Behaviour Assessment



University of
Natural Resources and
Life Sciences, Vienna

Department for
Sustainable Agriculture Systems

Division of Livestock Sciences
WG Animal Husbandry



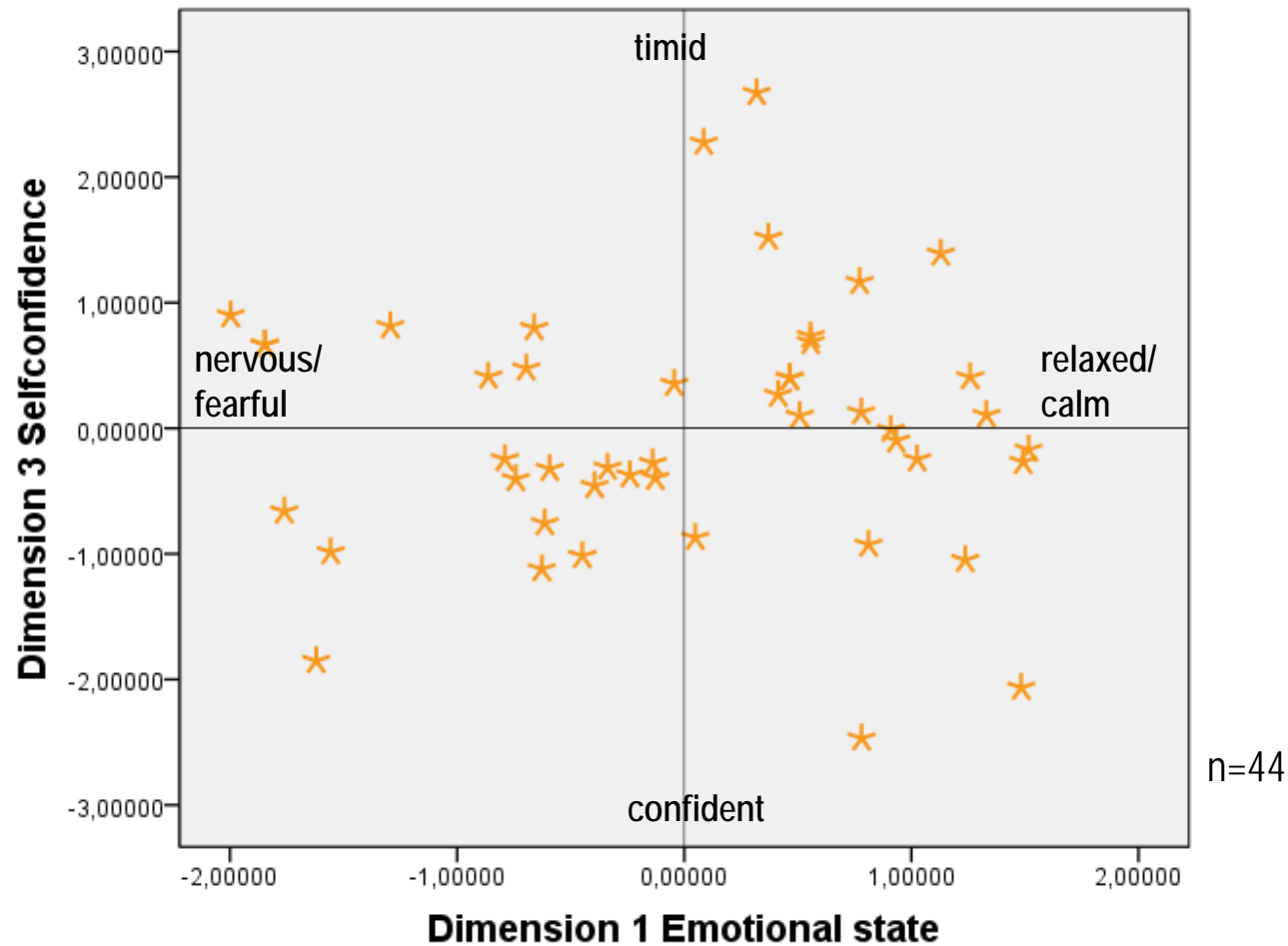
Results Qualitative Behaviour Assessment



University of
Natural Resources and
Life Sciences, Vienna

Department for
Sustainable Agriculture Systems

Division of Livestock Sciences
WG Animal Husbandry



Results Quantitative and qualitative behaviour assessment



University of
Natural Resources and
Life Sciences, Vienna



Department for
Sustainable Agriculture Systems

Division of Livestock Sciences
WG Animal Husbandry

| | AT100 (sec) | ET100 (sec) | AT50 (sec) | ET50 (sec) | TAP (sec) | NI (n) |
|-----------------|----------------|----------------|---------------|---------------|--------------|-----------|
| Emotional state | -0.356* | -0.177 | -0.160 | 0.011 | -0.233 | 0.249 |
| Proactive | -0.565** | -0.191 | -0.387* | -0.046 | -0.473* | 0.379* |
| Selfconfidence | 0.168 | 0.322 | 0.285 | -0.121 | 0.206 | -0.195 |

n=36 *p<0.05 **p<0.01

Conclusions



University of
Natural Resources and
Life Sciences, Vienna



Department for
Sustainable Agriculture Systems

Division of Livestock Sciences
WG Animal Husbandry

- The joined procedure of **QBA** and approach test is feasible on farm
- **QBA** provides additional and more differentiated information
- Selfconfidence seems promising in this dataset
- Larger sample size and other outcome parameters required



University of
Natural Resources and
Life Sciences, Vienna

Thank you for your attention!



Bio Schwein
Austria

Vertriebs GesmbH



6 October 2013

Thanks to the farmers and Daniela Kottik

QBA

Betrieb *Eder* Datum *12.06.2012* Uhrzeit *09⁰⁰* Beobachter

Schwein ID *207* *CP*

R2 *Buck 1*



University of Natural Resources and Life Sciences, Vienna

Department for Sustainable Agriculture Systems

Division of Livestock Sciences
WG Animal Husbandry

| | | | |
|--------------|------|-------|------|
| aktiv | Min. | _____ | Max. |
| entspannt | Min. | _____ | Max. |
| ängstlich | Min. | _____ | Max. |
| aufgeregt | Min. | _____ | Max. |
| ruhig | Min. | _____ | Max. |
| selbstsicher | Min. | _____ | Max. |
| forschend | Min. | _____ | Max. |
| schüchtern | Min. | _____ | Max. |
| gestresst | Min. | _____ | Max. |
| freundlich | Min. | _____ | Max. |
| neugierig | Min. | _____ | Max. |
| nervös | Min. | _____ | Max. |
| | Min. | _____ | Max. |
| | Min. | _____ | Max. |

R2

Buck 2

Results Qualitative Behaviour Assessment



University of
Natural Resources and
Life Sciences, Vienna



Department for
Sustainable Agriculture Systems

Division of Livestock Sciences
WG Animal Husbandry

→ Possible combination of positive and negative QBA scores

| Emotional state | Proactive | Selfconfidence | Gilts (n) |
|-----------------|-----------|----------------|-----------|
| + | + | + | 10 |
| + | + | - | 3 |
| + | - | + | 3 |
| - | + | + | 4 |
| + | - | - | 7 |
| - | + | - | 5 |
| - | - | + | 3 |
| - | - | - | 9 |

n=44

→ huge variability within QBA scores - every combination possible

Animal Welfare Concept



University of
Natural Resources and
Life Sciences, Vienna



Department for
Sustainable Agriculture Systems

Division of Livestock Sciences
WG Animal Husbandry

- The five freedoms (FAWC 1992)
 - Freedom from hunger and thirst
 - Freedom from discomfort
 - Freedom from pain, injury and disease
 - Freedom to express normal behaviour
 - Freedom from fear and distress
 - Conditions and treatment which avoid mental suffering
- Mental status or feelings is defined as positive and negative emotional states

