Breeding for temperament – possibilities and challenges in dogs and horses

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Breeding for behaviour

Animal-owner relationship
Safety for the owner/handler/others
Well-being of the animal
Performance
What is good behaviour?

Performance: Service, work, hunting...
What is good behaviour?

Performance: Training and competition...
What is good behaviour?

... or just for every day life to work...
What we do not want...
Challenges in breeding

- Genetics
- Sex
- Age
- Weather (wind...)
- Judge
- Surrounding env.
- Month of birth
- Training
Challenges in breeding

Genetics

- Sex
- Age
- Training
- Weather
  - wind...
- Judge
- Surrounding env.
- Month of birth
Challenges in breeding

Few breeds are used for their original purpose
Challenges in breeding

Few breeds are used for their original purpose
Focus on exterior conformity
Exaggerated features in dogs

German Shepherd
Challenges in breeding

Few breeds are used for their original purpose

Focus on exterior conformity

Conflict between breeding goal and desired mentality?
Very important:

- Stable companion dogs
- Show dogs
- Working dogs

(Svartberg, unpublished)
Very important:

- Stable companion dogs
- Show dogs
- Working dogs

(Svartberg, unpublished)
Challenges in breeding

Few breeds are used for their original purpose
Focus on exterior conformity
Conflict between breeding goal and desired mentality?
Mistake fear for other, more desired, traits?
Fear behaviour in Collies

Does your dog show signs of fear when walking on slippery floors?

45% show some degree of fear
Fear behaviour in Collies

Is your dog nervous or scared to walk in stairs?

55% showing some degree of fear
Challenges in breeding

Need reliable methods to measure differences between individuals

What behaviour traits are important?

Are they heritable?

Validation

Easily accessible and cheap!
Ways to evaluate temperament

Record indirectly
Ways to evaluate temperament

Record indirectly

Temperament tests
Recording behaviour

Traditional tests:

- Test of function – mimic an actual working situation
- Hunting test, herding test, competition results

Personality tests:

- Behaviour assessment protocols
- Not real-life-situations
- Describe behaviour that may influence function
## Heritabilities traditional tests

<table>
<thead>
<tr>
<th>Trait</th>
<th>$h^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound underground</td>
<td>0.06</td>
</tr>
<tr>
<td>Passion</td>
<td>0.08</td>
</tr>
<tr>
<td>Nose aptitude</td>
<td>0.04</td>
</tr>
<tr>
<td>Sound on trail</td>
<td>0.09</td>
</tr>
<tr>
<td>Height at withers</td>
<td>0.65</td>
</tr>
<tr>
<td>Chest circumference</td>
<td>0.45</td>
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</table>
# Heritabilities personality traits

<table>
<thead>
<tr>
<th>Trait</th>
<th>NSDTR</th>
<th>R. Ridgeback</th>
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<tbody>
<tr>
<td>Greeting behaviour</td>
<td>0.49</td>
<td>0.45</td>
</tr>
<tr>
<td>Curiosity</td>
<td>0.38</td>
<td>0.66</td>
</tr>
<tr>
<td>Playfulness</td>
<td>0.03</td>
<td>0.30</td>
</tr>
<tr>
<td>Threat</td>
<td>0.34</td>
<td>0.39</td>
</tr>
<tr>
<td>Social insecurity</td>
<td>0.34</td>
<td>0.27</td>
</tr>
<tr>
<td>”Happy and positive”</td>
<td>0.37</td>
<td>0.47</td>
</tr>
<tr>
<td>“Confident and curious”</td>
<td>0.37</td>
<td>0.52</td>
</tr>
</tbody>
</table>
Ways to evaluate temperament

Record indirectly

Temperament tests

Ask someone who knows the animal
Owner questionnaire

<table>
<thead>
<tr>
<th>Trait</th>
<th>Heritability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dog directed aggr/fear</td>
<td>0.25</td>
</tr>
<tr>
<td>Dog directed aggr.</td>
<td>0.20</td>
</tr>
<tr>
<td>Rivalry</td>
<td>0.15</td>
</tr>
<tr>
<td>Stranger directed aggr.</td>
<td>0.10</td>
</tr>
<tr>
<td>Owner directed aggr.</td>
<td>0.05</td>
</tr>
<tr>
<td>Dog directed fear</td>
<td>0.03</td>
</tr>
<tr>
<td>Stranger directed fear</td>
<td>0.02</td>
</tr>
<tr>
<td>Non-social fear</td>
<td>0.01</td>
</tr>
<tr>
<td>Dog directed interest</td>
<td>0.35</td>
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<tr>
<td>Stranger dir. Interest</td>
<td>0.25</td>
</tr>
<tr>
<td>Human dir. play interest</td>
<td>0.20</td>
</tr>
<tr>
<td>Trainability</td>
<td>0.30</td>
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</tbody>
</table>
Fear vs aggression

Aggression generally more difficult to record
Challenges in breeding

- Environmental influence
- Getting animals to test
- Big flighty animals!
- Getting breeders to agree...
Thank you!