

Source: Centennial Conference Dutch Kennel Club, 2 July 2002, Amsterdam

Testing Dogs for aggressive biting behaviour and fear behaviour for breeding purposes

drs. Doreen J. U. Planta

Dutch kennel Club

P.O. Box 75901; 1070 Ax Amsterdam; +31 20 3053796; doreen.planta@kennelclub.nl

1. Introduction

Aggressive behaviour and especially aggressive biting behaviour by dogs is still a problem in the Netherlands. The Ministry of Agriculture is therefore thinking about restricting 5 specific breed, i.e. the American Staffordshire Terrier, the Fila Brasileiro, the Dogo Argentino, the Mastino Napoletano and the Rottweiler, although there is no scientific evidence for any breed to show more aggressive biting behaviour than another breed. The Aggression test (presented in Lyon, 1999) was developed, to test aggressive biting tendencies in the individual dog. Depending on the outcome of this test, the dog would be muzzled, short leashed and neutered if the dog failed the test. A dog would fail the test if it showed aggressive biting behaviour in more than 6 subtest. The Aggression test has to be performed inside and takes about 45 minutes per dog.

In the meantime a behavioural test was developed for standardisation purposes for the different breed clubs. The goal of the MAG- test is to test in a standard way a population of a breed, in where mainly aggressive biting behaviour and fear behaviour of the dog is tested. Especially fear behaviour is of importance for the well being of the dog. These two main characteristics are therefore of importance on dog breeding.

Since the MAG- test is performed outside and contains of 16 subtests and the total time per dog is approximately 15 minutes it is therefore possible to test multiple dogs in one day. Therefore a large population of dogs can be tested in a relatively short time. An inventory per breed could be done using the MAG- test, and the result of this inventory could be a behavioural selection norm.

2. Performance MAG- test

The MAG- test contains of 16 subtests. These subtests are performed in a fixed order and all of the subtests are performed outside.

8 Subtests are carried out in the presence of the owner and 8 subtests are carried out in the absence of the owner. All subtests last 20 seconds.

The division of the different subtests is as follows:

- The dog is approached three times in a friendly way. Two times in absence of the owner and one time in presence of the owner. During the performance of these subtests the dog is petted and touched with an artificial hand. This artificial hand is being used for safety reasons, so it is not really possible for the helper to be bitten by the dog.
- The dog is approached in an unfriendly way in the absence of the owner.
- In three subtests the dog is confronted with a doll of approximately 80 cm. One of these subtests is performed by the owner. The doll is used for safety reasons.
- In one subtests the dog is confronted with an unfamiliar dog of a different breed and of the same gender in the absence of the owner.
- In three subtests the dog is confronted with a visual stimulus. Two of these visual stimuli are presented in the presence of the owner and one is presented in the absence of the owner.
- In three subtests the dog is confronted with a acoustic stimulus. Two acoustic stimuli are presented in presence of the owner and one in absence of the owner.
- In two subtests the dog is enclosed by three people, once in a normal pace and once in a running pace.

3. Validity**

Before any behavioural test should be used for any kind of purpose, validity of this test should be proven.

Validity: A behavioural test should provide a good indication of which individuals actually do show the behaviour and which do not. Validity has two components: sensitivity and specificity. *Sensitivity* is defined as the ability of a test to identify correctly those who do show the aggressive biting behaviour and *specificity* is defined, as the ability of a test to identify correctly does who do not show the aggressive biting behaviour. The number of dogs that incorrectly do not pass the test (false positive) and the number of dogs that incorrectly pass the test (false negatives) also determine validity.

In a table this is shown as follows:

Biting history/ Test Results	Pass the test	Fail the test	
Non- biter	True negatives (<i>a</i>)	False positives (<i>b</i>)	Total non- biters
Biter	False negatives (<i>c</i>)	True positives (<i>d</i>)	Total biters
	Total of dogs that pass the test	Total of dogs that fail the test.	

The percentage false positives (*the percentage of dogs that incorrectly don't pass the test*) can be calculated by dividing the number of false positives by the total of non-biters (**$b / a + b$**).

The percentage of false negatives (*the percentage of dogs that incorrectly pass the test*) can be calculated by dividing the number of false negatives by the total of biters (**$c / c + d$**).

Sensitivity can be calculated by dividing true positives (*dogs that correctly don't pass the test*) by the total biters (**$d / c + d$**).

Specificity can be calculated by dividing true negatives (*dogs that correctly pass the test*) by the total of non- biters (**$a / a + b$**).

4. Reliability

A reliable behavioural test is one that gives consistent results when the test is performed more than once on the same individual. Two major factors affect consistency of results: the *variation inherent in the method* and *observer variation*.

Reliability is a measurement for the precision. To determine the reliability of a test a number of dogs should be retested after a certain period. The results of test and retest must be highly correlated to have a reliable test. *

The consistency of results is also determined by observer variation. It is therefore of importance to agree upon fixed definitions of behavioural elements and behavioural characteristics, which are being instructed during the education.

Enhancement of the precision between behavioural judge's, education of the following is of importance:

Objective observation: objective and precise observation should be instructed. This is done by a lot of exercise so one is able to recognise and distinguish different behavioural elements and by taking

the morphological breed difference into account. Posture elements are breed related. There is for example a difference in readability of posture elements between dogs that have erect ears and dogs that have droop ears. Dogs among dogs should also learn how to read these differences in posture elements or other morphological elements. If tails are docked and/ or ears are cropped, besides the fact that these dogs become handicapped in their communication towards other individuals, it is more difficult to read these posture elements for the behavioural judges.

Furthermore biting of dogs is quickly interpreted as aggression, but biting also occurs during play and is therefore not the same thing as aggression although in both cases an open mouth is shown.

For this reason it is of importance that a clear distinction is made between the different meanings of biting behaviour and the difference in a play biting behaviour and an aggressive biting behaviour, since in our society aggressive biting behaviour towards humans is of importance.

Earlier research has shown that threatening behaviour has no reliable prediction to aggressive biting behaviour, so to test a biting threshold of a dog only aggressive biting behaviour can be taken into account.

Therefore in the Netherlands behavioural judges first observe the different and the separate behavioural elements and posture elements before interpreting these elements to characteristics. It is also for this reason that periodic checks are made on their observations, and by the use of two observers making independent observations during the behavioural test.

5. Results

The validation of the MAG- test is based on the behavioural elements 'aggressive biting' and 'aggressive attacking'.

More than 300 dogs were tested. The majority had never bitten humans and the remainder was reported to have bitten humans at least once. The group consisted of dogs belonging to at least 30 different breeds and included cross- breeds.

Biting incidents were reported by the owners using a questionnaire and by the behavioural counsellors using their observations.

The criteria for failing this test involves a choice which leads to admittance of aggressive biting in non, one or more of the subtests and in which of the subtests. When no biting at all is considered tolerable the correspondence between history of biting and actually biting behaviour during the test is 82%, i.e. 82% of the dogs is classified correctly as biter or non- biter. The total classification of dogs improves slightly when biting in one subtest is allowed.

Dogs with a history of biting show aggressive biting behaviour in significantly more subtests than dogs with a no history of biting.

The results from the validation the MAG- test suggest that this test is a valid instrument for testing aggressive biting behaviour and is therefore a useful tool to detect aggressive biting behaviour of dogs towards humans.

References:

- Mausner, J.S., Kramer, S.; Principles underlying screening programs, pp. 217-226. In: Epidemiology. An introductory Text, 1985
- Netto, W.J., Planta, D.J.U.; Behavioural testing for aggression in the domestic Dog: Applied Animal Behaviour Science 52 (1997) 243- 263