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WELFARE ASSESSMENT IN WORKING AND BREEDING HORSES USING BEHAVIOURAL INDICATORS

EVALUAREA BUNĂSTĂRII CAILOR DE MUNCĂ ȘI DE REPRODUCȚIE PE BAZA INDICATORILOR COMPORTAMENTALI

Anamaria BLAGA PETREAN[1)], Elena MITRĂNESCU[2),*)], Sorana DAINA[1)], M. BORZAN[1)], L. BOGDAN[1)], Silvana POPESCU[1)]

ABSTRACT | REZUMAT

The aim of the study was to assess the behavioural response towards humans in different horse categories – breeding and working horses. The study was carried out over a period of 10 months on 90 horses (50 breeding horses and 40 working horses). Using specific methods, the general attitude of the horses was evaluated (apathetic or alert) and their reactions (aggressiveness, fear/avoidance, indifference, friendliness) to the assessors' approach and walking besides; the attempt of touching the animal. The data were analysed using the SPSS statistical software. The value of minimal significance was considered at $P < 0.05$. The proportion of apathetic horses was higher than of alert horses, with no statistically significant differences ($P > 0.05$) between the two categories included in the study. For each type of behavioural response (aggressiveness, fear, indifference, or friendly response), there were no statistically significant differences ($P > 0.05$) between the evaluated categories of horses. Among the behavioural indicators, a relatively high number of apathetic horses, especially in the reproduction category, indicates the need for a more detailed study of the causes.

Keywords: approach, human-horse relationship, response, behaviour

Scopul studiului a fost evaluarea răspunsului comportamental al cailor de diferite categorii - cai de reproducție și cai de muncă. Studiul s-a desfășurat pe parcursul a 10 luni, folosind o populație de 90 de cai (50 de cai de reproducție și 40 de cai de muncă). Cu ajutorul unor metode specifice, s-a evaluat atitudinea generală a cailor (apatic sau alert) și reacțiile lor (agresiv, fricos, indiferent, prietenos) la apropierea evaluatorului, la trecerea pe lângă animal, precum și la încercarea de a-l atinge. Datele au fost analizate cu ajutorul software-ului statistic SPSS, iar valoarea de semnificație minimă a fost stabilită la $P < 0,05$. Proporția cailor apatici a fost mai mare decât a celor alerți, fără diferențe semnificative statistic ($P > 0,05$) între cele două categorii incluse în studiu. Pentru fiecare tip de răspuns comportamental (agresivitate, frică, indiferență sau răspuns prietenos), nu au fost diferențe semnificative statistic ($P > 0,05$) între categoriile de cai evaluate. Dintre indicatorii comportamentali, un număr relativ ridicat de cai apatici, în special din categoria de reproducție, indică necesitatea unui studiu mai detaliat al cauzelor.

Cuvinte cheie: apropiere, relație om-animal, răspuns, comportament

Horses exhibit a consistent set of behavioural parameters or indicators when they encounter situations that involve pain, fear, or stress (24). These behavioural parameters can manifest in explicit and potentially hazardous ways for humans (6), often resulting in corrective measures by the handler and contributing to the horse's distress (29). However, they can also be observed at a much subtler level. The incorporation of behavioural indicators in conjunction with physiological markers is acknowledged as a critical element in identifying pain (11).

1) University of Agricultural Sciences and Veterinary Medicine, Faculty of Veterinary Medicine, Cluj-Napoca, Romania
2) University of Agronomic Sciences and Veterinary Medicine, Faculty of Veterinary Medicine, Bucharest, Romania
*) *Corresponding author: mitranescuelena@gmail.com*

A variety of analogous behaviours have been linked to fear and stress reactions, including actions like eye wrinkling, twitching, and blinking (17), wide or triangulated eyes, ear position, muscular tension, defecation, avoidance, and tail swishing (16, 13). Numerous obstacles exist when it comes to learning how to identify and understand the nuanced body language involved. These behaviours can be individualised, as some horses exhibit more overt signals than others (19, 28). Distinguishing "relaxation" from the behaviour of a horse that is "shut down," depressed, and/or moving towards a state of learned helplessness can be challenging (1, 5, 3, 4).

The manner in which a horse is managed can elicit various types of responses. Various forms of restraint, such as the twitch, hobbles, chutes, and bits with

chains, are frequently employed to prevent flight or aggression. However, the use of a twitch, for instance, has been identified as a significant cause of accidents for equine veterinarians (18). Moreover, early forced contact can lead to foals showing aversion to human interaction at later stages (10).

It is evident that further research is required to investigate how to approach horses in a better and safer manner. This includes studying factors such as body position, posture, gaze, and the timing of approaches. Research should also explore the types of approaches and their timing that can contribute to developing a positive bond with horses. Additionally, it is crucial to examine how human management and care practices affect the human-horse relationship and identify ways to adapt these practices to positively influence the relationship (8).

Nonetheless, how horses react to interactions with humans primarily emerges from the dynamic interplay between their individual temperament, the temperament and capabilities of the human handler, and the cumulative experiences they've had with humans (8). The development of methods for assessing how horses respond to humans is a relatively recent endeavour, with various approaches emerging, particularly through behavioural testing. Various tests have been developed to assess how horses respond to human interactions. These include tests where a human remains stationary and waits for the horse to approach (31, 27, 14, 9), tests where the human moves around (12, 23), tests where the human approaches the horse suddenly (7) or slowly (15), and tests where the human attempts to touch the horse (27, 9). The aim of the study was to assess the behavioural response towards humans in different horse categories – breeding and working horses.

MATERIALS AND METHODS

This study evaluated 90 horses from various categories and husbandry systems. The research was conducted over a period of 10 months. The two main cate-

Table 1

The assessed behavioural indicators

Indicator	Assessment method	Score
Alert/ Apathetic	The animal is observed from a distance of two to three metres for 60 seconds without drawing its attention.	0 = Apathetic (inactive, half-closed eyes, head down, lack of attention to the environment); 1 = Alert (attentive to the stimuli of the environment).
Response to the human approach	The assessor approaches the horse at an angle of approximately 20° to the sagittal plane of the animal, gently addresses it with a few calm words, and stops at a distance of about 30 cm from the horse's shoulder. The evaluator remains in a relaxed but still-body position for 30-60 seconds. The horse's behavioural response is then recorded.	0 = Aggressiveness (ears flat, any attempt to kick or bite); 1 = Fear or avoidance (taking a step in the opposite direction or turning the head away from the human / tense muscles, immobile body position, ears pointing towards the assessor); 2 = Indifference (present in the environment but does not pay attention to the observer); 3 = Friendliness (movement of the head towards the human, relaxed facial expression, eyes normally open, ears turned forward, no wrinkling around the mouth or nostrils).
Response to human walking beside	The assessor walks alongside the horse towards its rear and back again, maintainning a distance of approximately 30 cm from its body, recording any sign of the animal's attention.	The scoring is similar to a human's approach test: 0 = Aggressiveness; 1 = Fear/avoidance; 2 = Indifference; 3 = Friendliness.
Response to a human attempt to touch	At shoulder level, approximately 30 cm from the animal, the evaluator extends his hand towards the chin region, with the hand pointing upwards, as if offering food. He stays like this for about 30 seconds, then, if the animal does not initiate physical contact, he raises his hand towards its chin, trying to touch it. The behavioural response is recorded.	The scoring is similar to a human's approach test: 0 = Aggressiveness; 1 = Fear/avoidance; 2 = Indifference; 3 = Friendliness.

gories of animals investigated included breeding horses (n= 50) from state stud farms and working horses (n=40) from the private sector. The horses kept on the stud farm were Lipizzaner and Romanian Draft horse breeds. The private working horses were of varying age categories and genders.

The general attitude of the horses (apathetic or alert) was assessed, as were their reactions (aggressiveness, fear/avoidance, indifference, and friendliness) in three specific situations: (i) to the assessors' approach; (ii) walking beside; and (iii) the attempt to touch the animal using the methods outlined by Popescu & Diugan, 2013 (20; Table 1).

Each horse was assessed by two experimented assessors trained together in a preliminary study until they achieved a minimum of 80% reliability both within and between them (20). The obtained data were analysed with the statistical programme SPSS (version 17).Comparisons between breeding and working horses were made with the Kruskal-Wallis test, as the data did not follow a normal distribution. Differences were considered significant if $P < 0.05$.

RESULTS AND DISCUSSIONS

Table 2 contains the results obtained after evaluating the behavioural indicators described before.

The behavioural tests were conducted to investigate the relationship between horses and humans.

The sources of fear and stress can undoubtedly be numerous, depending on the individual experiences of each horse in relation to their temperament and reactivity. However, given the conditions of care and use, humans can represent a constant source of these negative states, depending on how horses are handled. On the other hand, for the safety of the caretaker personnel, it is essential that the horse's perception of humans is not negative. The proportion of apathetic horses was higher than that reported in other studies (2, 20-23), with no statistically significant differences ($P > 0.05$) between the two categories included in the study. General apathetic behaviour, the lack of response to environmental stimuli, occurs in sick horses but also in cases where they are exhausted from work (30). Analysing the results, it can be observed that for each type of behavioural response (aggressiveness, fear, indifference, or friendly response), there were no statistically significant differences ($P > 0.05$) between the evaluated categories of horses.

The frequency of aggressive responses in the breeding horses increased from the second to the third test, and in the working horses it increased from the first to the second test, after which it decreased, probably due to more frequent human contact. Correlations have been reported between aggression and the comfort of animals in the shelter (25).

The number of horses that showed fear increased from the first test to the second and then decreased in

Table 2

Prevalence of evaluated indicators in breeding and working horses

Indicators	% (No. of animals)		P
	Breeding horses	Working horses	
The general attitude			
Apathetic	32 (16)	25 (10)	0.469
Alert	68 (32)	75 (30)	
Response to the human approach			
Aggressiveness	0 (0)	2,5 (1)	0.079
Fear/avoidance	22 (11)	27.5 (11)	
Indifference	42 (21)	52.5 (21)	
Friendliness	36 (18)	17.5 (7)	
Response to human walking beside			
Aggressiveness	0 (0)	5 (2)	0.141
Fear/avoidance	36 (18)	30 (12)	
Indifference	12 (6)	37.5 (15)	
Friendliness	52 (26)	27.5 (11)	
Response to a human attempt to touch			
Aggressiveness	2 (1)	0 (0)	0.395
Fear/avoidance	20 (10)	12.5 (5)	
Indifference	12 (6)	15 (6)	
Friendliness	66 (33)	72.5 (29)	

$P < 0.05$ - the difference is statistically significant

both categories of horses. The fear response in animals towards humans is likely a result of inappropriate attitudes from individuals with whom the animal has had unpleasant experiences before. If the interaction between horse and human has negative connotations for the animal (stressful, fearful, painful interactions), then the horse will avoid similar interactions in the future and will show a more pronounced fear behaviour (8). In working horses, correlations have been reported between the lack of response to humans and certain health and management issues (2, 21). These findings suggest that the observed indifference in working horses is a negative state. The friendly response of horses to human presence progressively increased from one test to another. From a general welfare perspective, a horse's friendly behaviour towards humans is the most desirable behavioural response. Sankey et al., (2010) observed a direct correlation between repeated positive interactions between humans and horses and the positive reactions and attitudes of horses towards people (26). Furthermore, horses have the ability to generalise positive experiences with an individual by developing positive mental associations and extending these to display positive attitudes even towards unknown individuals and people in general, even in different situations than those in which the mental associations were formed. These generalisations can persist even after a relatively long period of time has passed.

CONCLUSIONS

Among the behavioural indicators, a relatively high number of apathetic horses, especially in the reproduction category, indicates the need for a more detailed study of the causes. Regarding behavioural responses to humans, no statistically significant differences were demonstrated between the categories of studied horses. Unfortunately, issues related to the relationship between horses and humans are the most challenging to remedy, as they require a change in the mindset of those caring for the horses.

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