



ADAPTATION AND BEHAVIOUR OF ANIMALS – INDICATORS OF THEIR WELFARE

K. Uzunova^{1*}, Ch. Miteva², Yu. Mitev², B. Bivolarski¹

¹Faculty of Veterinary Medicine, Trakia University

²Faculty of Agriculture, Trakia University,
Stara Zagora, Bulgaria

ABSTRACT

A detailed research into the relationship between behaviour, adaptation, and welfare of animals has been performed. The factors of different nature, which cause disruptions in this relationship, influencing the behavioural reactions in animals, and their health were investigated. The current definitions of the term “welfare” are presented.

Key words: welfare, animals, adaptation, behaviour, factors

The struggle for existence of humans since long-forgotten times forced them to have contacts with animals, and study their behaviour. Even ancient thinkers, such as Epicurus, Lucretius, and Plato made efforts to understand the motivational forces behind animal behaviour. In the beginning of the XIX Century, Lamarck registered a functional interaction between the neural system and the psyche, relating the advancement of the neural system with animal behaviour. He defined “instinctive behaviour” as the natural reactions caused by interaction with the environment, created over the course of evolution (1).

An animal’s motivation to behave in a certain way depends on the factors (internal and external) of the environment, in which it lives (2). There are two types of internal factors. Among the first type are the factors related to the psycho-physiological essence of the animals (1), while the second type is related to the accumulation of a specific endogenous energy, pushing the individual to action (3). When the living organism falls under the influence of aberrations with an essence different than the native environment’s, a blockage appears within its motivation to behave in a certain way. At this moment, the process of the organism’s adaptation and change according to the

environment begins. In other words, in the presence of negative environment-related changes, the normal typical behaviour of a given animal is disrupted (4).

In recent years, highly productive breeds of animals with higher demands to rearing conditions were created. This caused some new diseases to emerge, related to the changes in the animals’ behaviour, induced by the alterations of the interaction between them and their environment. In the created, in some cases non-physiological, setting of the various breeding technological implementations, the animals react with abnormal behaviour (5). Also, according to the same author, animal behaviour is their reaction to any stimuli, or the way they respond to their environment. It is a series of activities, which are caused, as was already mentioned, by factors of exogenous or endogenous nature. In some cases, they favour animal behavioural reactions, in others –they are adverse, having a bad effect on their reactions, health, and productivity. In such cases, these factors are called “stressors” (5).

Despite the influence of domestication and genetic selection, which may lead to divergent evolution, related to the behaviour of wild and domesticated animals, studies in this field have led to the creation of the so-called “informational ethograms” (these are the most complete and accurate descriptions of the behavioural expressions of a certain animal species, according to its environment), typical for the behaviour of every animal species (3). The informational ethograms can

* **Correspondence to:** Dr. Krassimira Uzunova, Department of General Animal Breeding; Faculty of Veterinary Medicine, Trakia University; E-mail: mira60bg@yahoo.com

be compared with those that reflect the behaviour of the specific animal species, put in different conditions than its native, in order to find out if the difference would provoke any behavioural disturbances. It is not certain that informational ethograms give data on the extent of an animal's adaptation to its environment (6). In reality, if one type of behaviour disappears in a certain situation, it would be difficult to know if this was caused by the lack of motivation in the animal to behave in a certain way, or the impossibility to do it for another reason. To clarify the matter, it is necessary that animals' motivational processes be carefully studied. According to (1), motivation is a physiological mechanism, built by non-conditional and conditional reflexes, and their emotional equivalents. Motivation is an active state of higher neural activity, caused by external and internal stimuli. It is excitement or attraction, which leads to a particular behaviour and satisfaction. Still, ethograms allow us to find out where, when, and how the behaviour was realized, and this helps its interpretation related to animal adaptation and welfare (6, 7, 8). The level of adaptation is determined in accordance with the researcher's perception of its development – successful or unsuccessful, regarding the changed environment. In different situations, the process develops in different ways. For example, a wild animal would adapt much faster and better to an environment change than a domestic one would, if put in the same situation (6, 8, 9). In the conditions of contemporary animal breeding, the process of adaptation is considered successful if the animal has not become aggressive, is not afraid of humans, and utilizes its available space and technological implementations well. These three factors can be studied and characterized through observation of animals' behaviour in their own environment (3, 10, 11).

It should be noted that abnormal actions of a certain individual have an adaptive nature, i.e. adaptation to the new conditions allow the animal to seek and find some extent of welfare, which leads to a decreased motivation for action, which is impossible in the given situation, i.e. the living organism is, to a degree, under stress (10, 11).

At this point, we should note that the abovementioned welfare is a complex term, because it encompasses three factors (12, 13): a socio-cultural factor (the social relation between man and animal), agricultural factor (relevant for animals bred in the conditions of

modern agriculture), and biological (psychobiological features of the animal). Therefore, there are many definitions of welfare. Some authors believe that welfare is related to the physiological way, in which animals react when under stress (14, 15, 16). Other authors disagree with the previous statement (9, 16). In 1976, welfare was defined in the scientific community as the state of harmony between the animal and its environment, at the background of good physical and psychological health. This definition also has its flaws, according to (4), who thinks that welfare is a state characterized by the absence of physical and psychological pain. At some time, animal welfare was viewed as a function of animals' cognitive capabilities.

Some authors stress on these cognitive capabilities of an animal, in relation to its needs (3, 10). According to (17), the extent of welfare depends on how much the animal is able to adapt or fails to adapt to its environment. All cited definitions have something in common: they are not operational, i.e. applicable in current practice (3). Thus, a more successful definition is the one given by the English Federation for Humane Treatment of Animals (11), according to which, animal welfare is accomplished if 5 factors are present: lack of hunger and thirst, lack of discomfort, lack of pain, injury, or sickness, freedom for normal behaviour, and lack of fear, anxiety and depression. Based on everything mentioned so far, (3) defined the extent of welfare as successful adaptation of the individual to the surrounding world. To satisfy its needs, the animal must constantly adapt to the changes in the environment, which is manifested through changes in behaviour (16).

There are many factors that influence adaptation, behaviour, and animal welfare. They are numerous and different, yet, if they are stressors, they always lead to disruptions in the connection adaptation – behaviour – welfare. Depending on their strength and duration, stressors can often lead to sickness (9). The behaviour of sick animals is fundamentally different than the behaviour of healthy ones, and is a pathognomic sign. One of the five elements of welfare is affected (lack of pain, injury, or sickness). An experienced specialist can sometimes recognize a sick animal in a large group, by its lowered reactivity, raised hair or feathers, a tense posture, or abnormal movements, i.e. the animal failed to adapt to its stressor, and that led to behavioural disturbances, proving that its adaptation and welfare have been affected

(3, 5). In this relation, it is justified to conclude that an individual's adaptation to its constantly changing environment, as well as demonstrated behaviour, are more or less an indicator for its welfare. To control the connection between these three factors (adaptation, behaviour, and welfare), it is necessary for specialists to perform regular examinations and constant observation on all animals, so that the sub-clinical symptoms of emerging pathology can be discovered in their early stage.

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