

RESEARCH ARTICLE

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The Impact of the Blue Tongue Disease in the Animal Welfare

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Abstract

This is the first study in Albania on impact of bluetongue disease on animal welfare. The study was based on impact of the disease on the five freedoms and universal animal rights. All five freedoms appear to be affected in different level, ranged from 23%, from freedom to thirst, up to 62.6% from pain freedom.

Keywords: animal welfare; universal freedoms; violation of freedom; levels of influence; measure; indicator.

1. Introduction

Generally, there are relatively few studies published on the impact of the animal welfare [5], hence the magnitude of the effects of the disease on well-being is not well known [2]. In addition, the studies related to the impact of blue tongue disease (BTD) in welfare, are quite rare. Although the effect of various infectious diseases on animal welfare is also known because of trade restrictions and the increase in stocking density of the heads [8], there appear no clinical signs in the previously affected farms (with endemic disease status) [6]. as typical and ubiquitous indicators of the animal welfare. Health is an important part of welfare and when an animal is sick, its well-being is weaker than when it is healthy. On the other hand, the full extent of the disease's effects on animal welfare is rarely quantified [2]. The data presented in this manuscript, are part of an integrated study, related with the economic, social and welfare impact of BTD in cattle in Albania. Considering that animal welfare is a very broad concept, and one of main pillar of animal health, our study is focused only on impact of BTD on universal animal freedoms [5].

2. Material and Methods

In this study 139 cattle affected by the blue tongue disease were include. They belonged mainly to individual farmers located in eight districts of Albania (Berat, Dibër, Fier, Gjirokastra, Korça, Kukës, Lezha

and Shkodra). From a methodical point of view, the impact of the disease on the welfare of affected animals is assessed based on the impact level of disease on "5 freedoms and universal rights" set by the OIE, which also serve as indicators or welfare instruments. For this purpose, a special section within a general questionnaire on evaluation of BTD on animal welfare parameters was dedicated. The data from farmers' answers to questions were withdrawn. The questionnaire sections contain five subsections according to the universal animal freedoms: freedom from hunger and thirst, freedom from discomfort, freedom from pain, injury or disease, freedom to express normal behavior and freedom from fear and distress. The impact of BTD on five animal freedoms was estimated based on the encroachment level of each freedoms. The clinical disease patterns were ranked from mild, moderate, severe and very severe [2].

3. Results and Discussion

Regarding the freedom from hunger and thirst, it turns out that both indicators of this indicator appear to be disrupted by BTD, respectively at 37.4% of animals (in food) and 19.4% in drinking water. More detailed information on the degree of obstruction or the level of violation of freedom from hunger and thirst can be found in the Table 1.

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Table 1. Levels of food and water intake (number of animals and %), in animals affected by blue tongue disease

Degree of encroachment	Food intake		Drinking water	
	Animals	%	Animals	%
Impeded	26	18.7	15	10.8
With difficulties	21	15.1	10	7.2
Almost impossible	5	3.6	2	1.4
Total	52	37,4	27	19,4

The results indicate that freedom from hungry and thirsty are affected in different levels (Table 1). This is explained by the fact of the virus cause specific lesions in the buccal cavity and tongue, which inhibit the normal swallowing act. The impact of BTD in eating is much higher than its impact on drinking as the eating is more painful. In total, 52 (37.4%) animals suffer from difficulties on food and drink intake, while only a limited number of animals, 3.6% and 1.4%, were classified at group three, impossible to eat and drink. However, a higher number of animals, 15.1% and 7.2%, were moderated affected. Concerning the impact of the disease on freedom from discomfort, two aspects have been studied; the difficulty of the affected animals during the rest period, as well as their difficulty during standing up. Both symptoms appear to be present in about half of the cattle in the study (respectively 46.7% and 52.5% of the animals). Our results are comparable with other studies which reported that animal discomfort from BTD is affected up to 77.8% [1]. Table 2 show in more details the degree of impact on BTD on animal discomfort freedom. During lay down and standing up affected animals show visible discomfort and pain, which are categorized in three levels, respectively. The majority (31.7%) of affected animals are classified in level I during standing up while 26.7% of animals are classified in level II during laying down. The data show that *freedom from discomfort* as an

indicator of animal welfare is highly affected by blue tongue disease.

Table 2. Degree of difficulty of animals affected by blue tongue disease, during lying down and standing up

Levels of difficulty	During lay down for rest	
	Animals	%
I (Impeded)	20	14.4
II (With difficulties)	37	26.7
III (Almost impossible)	8	5.6
Total	65	46,7

Levels of difficulty	While standing up	
	Animals	%
I (With difficulties)	44	31.7
II (Almost impossible)	19	13.7
III (Completely impossible)	10	7.2
Total	73	52,5

The impact of BTD on freedom from pain, injury or illness, has been investigated through the identification of two indicators: presence of lameness and decubitus wounds [7]. The lameness severity is classified in four levels. The pain is an indicator of injury of the tissue's integrity [5], which constantly affects the animal welfare. Despite that, only limited animals (17) suffer from decubitus wounds, this is a critical condition for farmers and affected animals, because those animals in general died and the welfare is extremely affected. Altogether, there are 87 animals (or 62.6%), which also suffer from painful lameness (Table 3). The frequency of lameness was 62.6%, which is very close (62.6%) to that reported by a study conducted in our country about BTD [4]. Another study reported that lameness varies deeply and range 13.6-69% [1, 3], depending the BTV serotypes and status of disease in population.

Table 3. The levels of the severity of lameness in the animals affected by the BTD

Degree of lameness	Frequency of lameness	
	Animals	%
Slightly visible	19	13.7
Mild	31	22.3
Moderate	21	15.1
Severe (unable to move)	16	11.5
Total	87	62,6

Looking at the table carefully, it appears that most of the affected animals have mild lameness (22.3%) and the smallest part (11.5%) belong to the worst level of lameness that goes into "Impossible to move" (11.5%). The slightly visible and moderate lameness were recorded 13.7, 15.1% respectively, while 16 animals (11.5%) suffered from severe lameness. As the data indicate, mild to moderate lameness represent the majority of the affected animals (47.4%). Our results are close to those reported to other study [3], which reports 50% cases with mild lameness and 14.1% very severe (in our case defined as "unable to move"). This degree of lameness generally reflects the painful condition and was used as indicator for

evaluation of impact of BTD on freedom from pain. Evaluation of BTD impact on freedom to express normal behavior and freedom from fear and distress was based on data collected from dedicated part of the questionnaire. The results indicate that normal behavior, fear and distress freedoms were affected in 27.3% and 23%, respectively, of sick animals (Figure 1). The latest two freedoms were less affected by the BTD disease, compare to other freedoms. This could be explained, at least in partly by the subjective assessment of the parameters by the farmers and insufficient experiences.

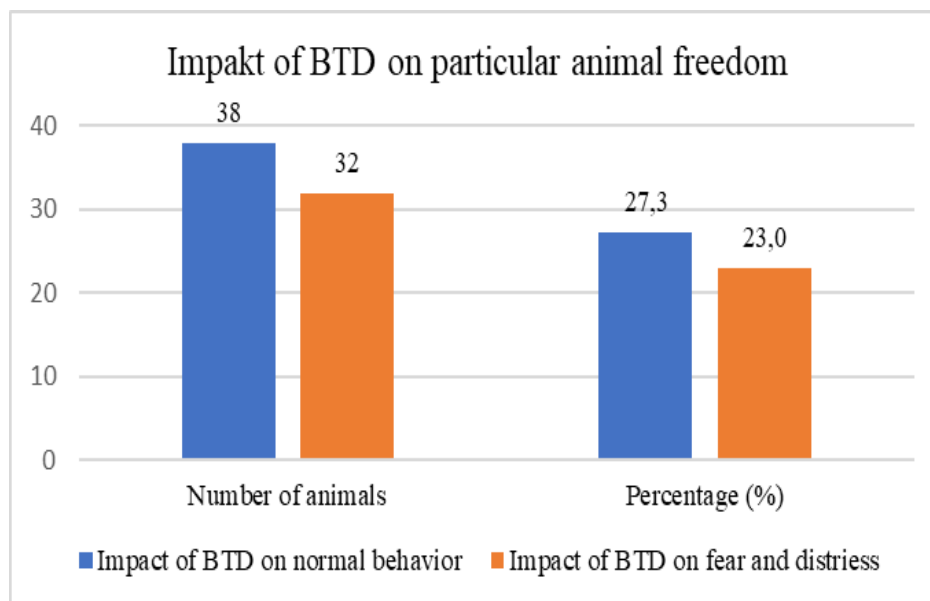


Figure 1. Impact of BTD on freedom to express normal behavior and freedom from fear and distress in affected animals.

4. Conclusions

We conclude that BTD have a negative impact on animal welfare and affects all five universal animal freedoms. The impact level of BTD on animal freedoms varies from 23% to 62,6%. Specifically, freedom from hunger and thirst 37.4 and 19.4% respectively, freedom from discomfort 44.7%, freedom from pain, injury or disease 62.6%, freedom to express normal behavior 27.3% and freedom from fear and distress 23%.

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