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Dairy Cows' Welfare Assessment in a Farm from South-Eastern Romania

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Abstract

This study aimed to assess the welfare level of dairy cows in a farm from the South-Eastern Romania, in a mixed house with free-stalls inner space division. The welfare level was established by using an integrative numerical assessment system – the Austrian Animal Needs Index 35L/2000. There were scored 26 objective welfare indicators within the five areas of influence: locomotion, social interactions, flooring, light and air, stockmanship. In order to assess and score some indicators, there were used modern devices (LX 1102 light meter, Drager Pac 7000 ammonia analyzer, Testo 405 V1 thermo-anemometer, SL 4012 sound meter). Moreover, for increasing the objectivity in measuring and scoring animal cleanliness within the fifth area on influence there was used Hygiene Score Card. Analyzing the results, it could be noticed that the highest scored indicators were those within the Locomotion and Social interactions areas (as expected, considering the loose-system applied in the studied farm). The lowest scored areas were Flooring and Light and air, the critical indicators being light (uneven lighting and some low intensity values: 28-30 Lx) and outdoor areas cleanliness, resulting in poor animal cleanliness. In spite of the mentioned negative aspects, the overall ANI 35L score (30.5 points) reflects a good welfare, but the score could be validated on the condition that the light in the shelter is corrected. Addressing this issue along with the cleanliness of the outdoor areas may improve the welfare level to the excellent rating and may also increase the milk production.

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1. Introduction

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Lately, it has been registered worldwide an increasing of general public interest regarding animal welfare in farms, research facilities, during transportation and slaughter etc. Under the constant pressure of public opinion, non-governmental organization for animals' protection, and media upon European and national authorities or legislative structures, the animal welfare standards continuously evolved and improved, become more and more strict. Animal rearing systems and technologies with no respect with animal welfare issue disappeared or had become obsolete (tether-system of animal housing, non-enriched cages in laying hens). Nowadays, the entire society understands that animal husbandry cannot be conceived without a good welfare level of animals – an essential condition for a higher production, but also a moral duty of man regarding the animals (Thewis and Galiş, 2012).

According to the most accepted definition – in fact an operational definition (Broom, 1986) “welfare of an individual is its physiological and psychological state as regards its attempts to cope with its environment”. In this perspective, the animal welfare could largely vary from very poor to excellent and could be objectively assessed on scientific basis.

Among the large number of animal welfare assessment methods (Winckler, 2014), the most recommended are the integrative numeric systems – which combine physiological welfare indicators, ethological indicators and ecological ones (animal housing conditions), approaching thus all the animal welfare inputs with an unique output – animal welfare level. The greatest advantage of such systems is that the welfare of animals at group level is obtained as a score – a numeric value, so that comparing animals' welfare levels between different farms or different rearing conditions become possible. An example of such a system, which emphasizes the housing conditions (Bartussek et al., 2000), is the Austrian system Animal Needs Index 35 (ANI 35), whose version 35L/2000 is used in this study for assessing the welfare level in a farm of dairy cows from South-Eastern Romania.

2. Materials and methods

The study was conducted in February 2016, in a farm of dairy cows from Montbeliard race reared in loose-system, in a mixed shelter of 65.7 m/8.9 m - with mixed wind-driven ventilation and mixed lighting. The natural light was assured by 25 windows of 1.20 m/0.86 m on each longitudinal wall of the shelter and the artificial light by 30 fluorescent light tubes of 40W placed on two rows. The 22 dairy cows are housed in a pen which had 41.7 m/5.90 m (fig. 1), with a lying area divided in free-stalls (of 245 cm length/120 cm width/125 cm height of neck rail) and an area for movement-feeding-manure collecting and discharging with scraper chain conveyor. The assured feeding space was 68 cm per cow and the watering space of 7.43 cm per cow.



Fig. 1. Inner space division in the dairy cows' shelter

In compliance with ANI 35L/2000 welfare assessment system for dairy cows, we followed and scored 26 objective welfare indicators grouped within five areas of influence: locomotion, social interactions, flooring, light and air, stockmanship. For rating and scoring the indicators belonging to the forth area of influence – light an air – there were used modern devices: LX 1102 light meter for measuring light intensity and establishing light uniformity, Drager Pac 7000 ammonia analyzer for establishing air quality, Testo 405 V1 thermo-anemometer for measuring the draughts speed in the lying area, SL 4012 sound meter for establishing the sound level). In addition, for increasing

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