

## ASPECTS OF EQUINE FEEDING BEHAVIOR AND FOOD CONSUMPTION

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### Abstract

*In the process of researching the feeding behavior and food consumption reflexes of equines, a series of measurements have been executed regarding the quantity of food that has reached the oral cavity of the observed specimens with one bite, and also the speed of consumption for a given quantity of food.*

*The data has been collected at three farms, from 20 specimens, all of them over three years of age.*

*Repeated measurements have been performed regarding the quantities of oat consumed with one bite, and also the time necessary for the consumption of one kilogram of oat.*

*Regarding the bite, the distinctions observed between the specimens varied individually, but significant variations have been observed regarding the time necessary for the consumption of the food.*

*During the research a strong correlation has been noticed between the speed of the food consumption and the frequency of colic in the observed specimens.*

*For the specimens with colic, the time necessary for the consumption of 1 kg of oat was approximately 30-40% shorter than the average of the observed group.*

*A few causes have been identified for the acceleration of food consumption, which can implicitly contribute to the development of equine colic.*

*The data obtained can be beneficial for the understanding and exploitation of certain behavioral patterns and the eventual prevention of some of the problems caused by equine feeding behavior.*

**Key words:** Equines, Colic, Behavior

### INTRODUCTION

The forage consumption is indispensable for keeping animals alive and productive, the supplying of food and its consumption represent an essential element of the exploitation of animals. The quantity of forage and the speed of its consumption by equines becomes an essential issue especially for the specimens which are exploited for sports and recreation.

### MATERIAL AND METHODS

During the research regarding the feeding behavior of equines, twenty specimens above the age of 3 years have been observed at three farms in Covasna County. For data collection, the method of repeated weighing

has been used, to determine the quantity of food that has reached the oral cavity with one bite, and also the measuring of the time necessary for the consumption of 1 kilogram of oat.

The specimens which participated to the research have been kept in stall boxes at the three farms. The data obtained from the 20 specimens has been statistically processed.

### RESULTS AND DISCUSSIONS

To determine the quantity of oat that reaches the oral cavity and is ingested, the method of repeated weighing has been used during the research. At each test, a preweighed quantity of 1 kg of oat has been used, in a container similar to the ones the specimens have been used to. After each mouthful of oat, the remaining quantity has been weighed, each procedure has been repeated for three times at different age

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The manuscript was received: 17.09.2018

Accepted for publication: 25.02.2019

groups. At 300 days of age, a foal can take into its oral cavity a quantity of 18 grams of oat, with limits between 15 and 25 grams. At the age of 90 days, the quantity of oat reaches 28 grams, with limits between 20 and 35 grams. At the age of 180 days, before weaning, the quantity of oat reaches 33 grams, with limits between 20 and 45 grams, as against the capacity of an adult specimen, where the quantity of oat that reaches the oral cavity is averagely of 72 grams, with limits between 60 and 80 grams (Chart 1.).

Due to the conformation of the gastrointestinal tract, the equines feed for a longer time, but in smaller quantities, with repeated mastication, and during the consumption of concentrated food, a more accelerated rhythm can be observed than during the ingestion of fodder. With advancing age, the quantity of food that reaches the oral cavity to be digested is also increasing. At the beginning of consumption, the ingestion, especially of grains, takes place at a more accelerated rhythm at most of the animals, and the intensity increases in the second part of the consumption, a fact that can be notably observed in the case of concentrated food.

The food consumption habit of the equines is an individual characteristic, on which hereditary characteristics, breed and sex have very little influence. The time necessary for the consumption of a predefined quantity of food can instead be affected by the condition of the animal, its place in the hierarchy, and the level of stress the specimen is exposed to.

The time necessary for the consumption of 1 kg of oat has been recorded at three farms, at 20 specimens above the age of three years, using the method of repeated weighing (Chart 2.). The average of the group was of

614 seconds, the minimal individual speed being of 361 seconds, and the maximum of 739 seconds.

The way and the speed of food consumption are individual characteristics, the minimal individual time for the consumption of 1 kg of oat being 323 seconds, while the maximum was of 835 seconds. During the three years of researching the feeding behavior of equines, it has been noted that by some of the observed specimens, colic has manifested more often than by the others.

During the data processing, a strong correlation has been noted between the speed of food consumption and the manifestation of colic at the same animals. At specimens nr. 6, 13 and 18 (see Chart 2), colic has manifested relatively often. In fact, the oat consumption time for the specimens with colics has been 30-40% faster than the medium of the observed group. Specimen nr. 6 had an average of 414 seconds, nr. 13 of 377 seconds, while for specimen nr. 18 it took 361 seconds to consume a kilogram of oat. As against the group average of 614 seconds, the medium of this problematic specimens was only 382 seconds (less 38% than average). Other specimens belonging to the observed group also manifested colic, but only sporadically, with a much lower recurrence.

The feeding behavior of the animals can be affected by the stress caused by the presence of a higher ranked specimen during the food consumption. Specimen nr. 13 had an average duration of feeding of 377 seconds, but after being moved to another stall box due to the conflicts with its neighbor, it has been observed that its food consumption time could increase to 497 seconds.

Chart 1 The quantity of oat in the oral cavity at the beginning of feeding

Age of individuals	Test 1	Test 2	Test 3	Average x
Foal aged 30 days	15	25	15	<b>18,33</b>
Foal aged 90 days	35	30	20	<b>28,33</b>
Foal aged 180 days	20	35	45	<b>33,33</b>
Adult	<b>80</b>	<b>60</b>	<b>75</b>	<b>71,67</b>

Chart 2 The time necessary for the consumption of 1 kg of oat, expressed in seconds

Nr	Specimen	Test 1	Test 2	Test 3	Total per specimen	x specimen
1	La1	540	646	825	2011	670
2	Li2	600	825	720	2145	715
3	La3	675	563	835	2073	691
4	Li4	532	555	792	1879	626
5	Li5	585	495	433	1513	504
6	Li6	442	417	382	1241	414
7	Na7	555	497	715	1767	589
8	Ni8	672	718	792	2182	727
9	Ni9	655	552	737	1944	648
10	Sra10	510	753	671	1934	645
11	Sra11	720	657	802	2179	726
12	Ma12	805	625	646	2076	692
13	Mi13	352	445	335	1132	377
14	Mi14	600	655	565	1820	607
15	Mi15	552	625	679	1856	619
16	Ma16	522	565	695	1782	594
17	Ai17	792	742	655	2189	730
18	Ma18	323	419	342	1084	361
19	Mi19	575	615	605	1795	598
20	Mi20	758	625	835	2218	739
<b>Total</b>		<b>11765</b>	<b>11994</b>	<b>13061</b>	<b>36820</b>	<b>12273</b>
<b>x</b>		<b>588</b>	<b>600</b>	<b>653</b>	<b>614</b>	<b>614</b>

**Abbreviation** L-Lipizzaner, N-Nonius, Sr-Medium-Heavy Romanian, A-Pureblood Arab, M-Half Breed, i-mare, a-stallion

## CONCLUSIONS

The feeding behavior and the speed of consumption are individual characteristics with hereditary aspects, and they can be influenced by stress.

The medium quantity of oat that reaches the oral cavity is averagely of 72 grams, with limits between 60 and 80 grams of oat.

The time necessary for the consumption of 1 kg of oat is a medium of 620 seconds, with limits between 350 and 850 seconds.

The specimens which have a 30-40% smaller speed of consumption than the group average can be predisposed to the manifestation of colic.

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