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THE INFLUENCE OF THE BREEDING TECHNOLOGY ON THE HEALTH OF THE CALVES FROM TWO FARMS IN TIMIŞ COUNTY

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Abstract: The purpose of this work was to assess the efficacy of two different breeding technologies in dairy farming, based on the weight of the calves at weaning and on the frequency of veterinary interventions during this period. Three lots of calves were selected from Farm A, an intensive breeding farm, where the calves are separated from the cows shortly after birth and fed using artificial feeding until they are 2 months old (weaning age). A group of calves were selected from Farm B which is using a traditional breeding technology, the cow and the calf being separated after de 15th-day post-birth. The separated calves are kept in groups and fed exclusively with collected milk for a 30-day period. The results revealed that the lot of calves from Farm B didn't need any type of medical intervention, while the groups from Farm A displayed respiratory and digestive pathologies during this time interval. The calves from Farm B had a higher average weaning weight than those from Farm B.

Keywords: technology, housing, treatment, calves.

• Introduction

Increasing efficiency in livestock production is needed to ensure that enough food can be produced to meet the demands of a growing population, help reduce the environmental impact, and ensure that food is available and affordable [15]. Like other automatic monitoring technologies, feeding calves through a robotised system can decrease human-animal interactions, which may not be favourable [10]. Good colostrum management is still recognised as the single most important factor to preventing calf morbidity and mortality; however, it is now known that immunoglobulins are only one of many components of colostrum that are vital for the calf's development [2, 3, 14]. A biologically normal (intensive) milk-feeding programme is subsequently necessary for optimal body growth, organ development and resistance to infectious diseases. Ad-libitum or close to ad-libitum feeding in the first three to four weeks of life also leaves calves less hungry thus improving calf welfare. Only calves fed intensively with colostrum and milk are able to reach their full potential [1, 4] for performance throughout their life. Bovine colostrum contains bioactive proteins in higher abundance then mature milk. When the proteomes of colostrum and milk are categorized according to their biological function, the largest difference is observed in the category of proteins responsible for metabolic processes. Colostrum quality is defined by Ig concentration and remains one crucial factor for successful passive transfer [5, 8, 12]. Since direct laboratory methods for the determination of Ig in colostrum are elaborate and expensive, the use of cow-side testing of colostrum quality has been intensively investigated [9, 10]. or most of the last century research in the area of calf nutrition and management focused on reducing the amounts of whole milk fed to dairy calves prior to weaning by all means possible. In two seminal studies Kahn et al. [6, 7] presented a method which allows feeding high volumes of milk in the first three to four weeks of life without the drawback of stagnating growth during weaning due to poor starter intake. Calves in the step-down group did not only gain weight and grow much faster than conventionally fed calves, they also showed higher starter and forage intake after the reduction of feeding volumes. Thus, profound changes in current calf management practices are needed to improve dairy calf health and survival, enhance long-time performance of dairy heifers and satisfy consumer interests in farm animal welfare.

• Material and method

At 225 days of gestation, the heifers receive the first vaccine, Kolibin©, against neonatal diarrhea of calves, a vaccine that includes antigens against gastroenteric diseases caused by *Rotaviruses*, *Coronaviruses* and enteropathogenic *E.coli*, with a booster every two weeks. At 249 days gestation is confirmed and the heifers are moved to the calving preparation cages, to the primiparous boxes with common permanent litter. At the time of calving, the heifer is moved to the calving box. After calving, a marking tape of freshly calved is placed on it to be more easily observed on the parlor, in view of collecting colostrum (at the first and two milkings). The colostrum is tested with the lactodensiometer, it is placed in three-litre bags, and then the bag is put in plastic cassettes and frozen. On the colostrum bag, the number of cows, the date of collection and the executioner are noted. The cow stays for 15 days in the group of freshly calving cows, where the ration is rich in energy and protein, and after 15 days it is moved to the primiparous group. 50-60 days after farrowing, the first artificial sowing takes place. After calving, the calf receives an elastic band on the anterior right leg with the identification number of the mother. He will be left with his mother to be licked, but he will be supervised not to suck or be trampled by the mother. Within 20 minutes after calving, a calf regardless of gender receives three litres of colostrum with the help of an oesophagal probe and will be moved to individual berths, depending on gender. In addition to milk they receive a mixture of musli and clean water at discretion. After 58 days, a week they receive three liters in the morning, and the next week only granules. On the second day of life, calves are vaccinated with intranasal vaccine with modified virus strains (Rispoval RS) and the level of serum postcolostral proteins is tested. On day 35, vaccination against *Trichophyton* takes place, and the booster is made on day 49th. On day 65, calves are dewormed orally with Toltrazuril©.

• Results and discussions

The first lot consisted of ten females born from 01.01.2020 to 05.01.2020, these having the crotarations 3460, 3461, 3462, 3463, 3464, 3465, 3466, 3466, 3467, 3468 and 3469. The average weight at calving was 37.5 kg, with a minimum value of 28 kg and a maximum of 43.5 kg. At weaning, on the 65th day of life, the average weight was 84.5 kg. In this batch, 6 out of 10 calves had respiratory diseases, two of which also had digestive disorders. Domestic animals, especially hybrids obtained in the last 10 years, are dependent on human care, especially for housing and fodder, because being unilaterally selected, they need special living conditions [13]. Of the physical environmental factors, temperature exerts the strongest influence on the metabolism and implicitly on the systems that ensure the state of health. The state of health implies an optimal development of the biological functions of the organism, which are conditioned by the complex of relations between the organism and the environment. It is a feature of the way of existence of living matter, differentiated and organized structurally and functionally in the body. That is, a healthy organism is characterized by a balanced unfolding of all biological processes, which ensures its adaptation to the various demands of the environment [10]. Thus, the first bovine (3460) received treatment for respiratory diseases on 30.04, the treatment consisting of taking the antibiotic Forcyl© for five days, Melovem© which has an anti-inflammatory role and the Intravit© product containing a vitamin complex. At the end of May on the 29th, the same therapeutic protocol was administered because the respiratory symptoms returned. The second vine (3661) received a single administration of antibiotic Draxxin© on 11.02.2020, and on 29.05 followed the therapeutic protocol consisting of the administration of Melovem©, Forcy©l and Intravit to treat respiratory diseases. In contrast (lot 4) 15 calves were monitored from a dairy (B) cow farm, where the calf was checked next to the cow for 15 days, after which they received collecting milk. Of the 15 calves, only two had a slight diarrhoea on day 16, which did not require therapeutic intervention. The average weight at calving was 28 kg, and at weaning, 85 kg. It can also be seen that the calves in group 4, although they had a lower fattening weight than the calves in the other three groups, had higher growth increases, reaching weaning at higher body masses. In the fourth lot there were neither mortality nor specialized medical intervention was required, as the transient diarrhoea of the 16th day appeared against the background of the transition from breast milk to collecting milk.

Crt. No.	Reg. Number	Weight at birth	Weight at farrowing	Clinical signs	No. of treaments
1	3462	32	82	D+R	3
2	3465	43,5	89	-	0
3	3467	36	84	D+R	5(+)
4	3678	42	85	R	1
5	3673	30	80	-	0
6	3682	44	83	R	2
7	3460	30	78	R	1
8	3649	32	78	-	0
9	3466	36	82	-	0
10	3464	35	80	D+R	2
Median Values		36,05	82,1	Total calves with problems	6 / 1,4

• Conclusions

Technological drilling requires a higher, sometimes unjustified, contribution of sanitary actions [15], which most often are to the detriment of the animal (calf), but also of man, both from an economic and health point of view [4, 10, 14], so in the first three lots, mortality was also recorded as a result of respiratory and/or digestive complications, and in lot 4 there were no significant problems. It can thus conclude that depending on the chosen breeding method, pathologies can be observed in the breeding systems, which are directly proportional to the change in the technological flow in terms of the animal's nutrition.