

## 15. Abstract

### **The effect of anionic salts in the nutrition of dry cows on their health and productivity after calving**

**Key words:** dry cows, anionic salts, milk production, cow health

The aim of the research was to determine the effect of anionic salts in feeding dry cows on their health during perinatal period and their colostrum and milk yield. The amount of taken feed was inspected as well. Colostrum quality and urine pH of cows fed with the addition of anionic salts: magnesium sulfate, magnesium chloride and ammonium chloride in six different variants of quantitative and qualitative composition. The research was conducted on 378 HF cows divided into 6 nutritional groups with the addition of anionic salts: 60g magnesium sulfate, 50 g magnesium sulfate + 50 g magnesium chloride, 60 g magnesium sulfate + 60 g magnesium chloride, 80 g magnesium sulfate + 80 g magnesium chloride, 60 g magnesium sulfate + 80 g ammonium chloride, 70 g magnesium sulfate + 60 g magnesium chloride + 70 g ammonium chloride). Each group received the same TMR (Total Mixed Ration) for 6 weeks, varying only in the amount and types of used anionic salt. Urine for pH testing was taken from cows twice: first time in 5-6 weeks before calving and a second time 1-2 weeks before calving. Calculations were performed with SAS 9.2 and Sas Enterprise Guide, using MEAN package and GLM with NIR test. The effects of additional anionic salts on health (ketosis, hypocalcaemia, bearing retention, displaced abomasum) and performance and colostrum quality as well as milk yield at 30 days of lactation and for 305 days of lactation have been analysed. The aim of the research work was to indicate a method of feeding dry cows that would minimize the frequency of metabolic diseases of the perinatal period and improve the milk yield in the next lactation. The experiment has shown a positive effect of increasing the number and types of the anionic salts used to reduce the frequency of subclinical ketosis, hypocalcaemia, bearing retention and displaced abomasum. There has been no observable influence that is significant with the use of anionic salts on the feed intake. The observed decrease in the amount of the taken up feed was associated only with the approaching date of the calving. A highly significant influence of anionic salts on the decreased pH of cows' urine before calving was found, which indicated cow health, manifesting reduction in the frequency of metabolic diseases during the perinatal period. The positive influence of the studied anionic salts on the quality and the cows' colostrum yield was

stated. A positive effect of the examined anionic salts in the dose for dry cows in an increase in milk yield, determined on the 30th day of lactation and a highly significant increase in the 305-day productivity of cows with an increase in the amount of added anionic salt was found. The most beneficial effect was achieved by supplementation dosage with a combination of three anionic salts: 70 g magnesium sulfate +60 g magnesium chloride +70 g ammonium chloride. Addition of two anionic salts had a positive impact on the traits studied as the quantity of substrates increased (from 50 g magnesium sulfate +50 g magnesium chloride, 60 g magnesium sulfate +60 g magnesium chloride, 80 g magnesium sulfate +80 g magnesium chloride, up to 60 g magnesium sulfate +80 g ammonium chloride). The least beneficial was the addition of one anionic salt: 60g magnesium sulfate. It should be taken into consideration that this kind of supplementation should be carried out by using a mixer-wagon in which the feed components can be thoroughly mixed and the amount of the taken feed can be specified by weighing the given feed and uneaten feed.

18.03.2019. B. J. B. J.