Phosphorous and vitamin B as problems on the dairy production

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Malnutrition refers to an incorrect use of nutrients and is accepted as one of the major constraints in the production of livestock (Radostis, 2002). Insufficient energy is very often responsible for low production. However, despite a correct energy management has been observed that it can result in deterioration in the production due to vitamin and mineral imbalances (McDowell, 1984).

Among the essential vitamin and mineral components during early lactation, we have phosphorus, folic acid (Vitamin B9) and cyanocobalamin (vitamin B12). Phosphorus is one of the most important minerals involved in cellular metabolism, a major component of adenosine triphosphate (ATP), major mineral on the bone and important buffer for the stability of pH on the organism (Medina, 2007). A lack of phosphorus would decreased milk production as a result of infertility, weight loss and depressed appetite (Van Niekerk, 1978). The Butafosfan, which is an organic phosphorus compound, can be a key element in correcting phosphorus deficiency. This was demonstrated by Nunes Corrêa (2009) and Kreipe (2011), who in applying Butafosfan with cobalamin in the postpartum period of dairy cows , obtained a reduction of non-esterified fatty acids and β - hydroxybutyrate in blood and increased daily milk production , respectively.

As for Vitamin B, although ruminal microorganisms synthesize it , its requirement fails to be covered because of the high demand for milk production (Weiss and Ferreira, 2006; Ragaller et al, 2008) . Folic acid and cobalamin are necessary for the synthesis of DNA and RNA , and are also essential for the production of red blood cells, thus its deficiency may cause anemia (Merck , 2000), as well as problems in the synthesis of DNA fetus and placenta during pregnancy (McNulty and McPartlin, 1993) , along with a low milk production and poor milk composition (Graulet et al, 2007) . It is important to consider that the administration of folic acid in the diet often fails to meet the requirements of animals, given their low availability after the ruminal passage (Regaller et al, 2008).

In the production of dairy cows, pregnancy and lactation are concomitant during many months a year, so avoid a progressive deficiency of folic acid and its derivatives (folate) should be a priority (Ragaller et al, 2008). We should note also that folates are involved in the remethylation of homocysteine to methionine, an essential part of the methylation cycle. This reaction is, in turn, dependent on the cobalamin, since the enzyme methionine synthase requires vitamin B12. Given that methionine is the main amino acid limiting factor for milk production, supplementation with these components is essential for dairy cattle (Fenderson and Bergen, 1975), especially during the early lactation (Scott, 1999 Ragaller et al, 2008; Preynat et al, 2008).

Thus, supplementation with phosphorus, folic acid and cobalamin in cattle is of importance to maintain milk production in a continuous line without significant deficiencies and at the same time comply with the requirements of animal welfare. It should be noted that folic acid supplementation should always be done with cobalamin, because they are interdependent in many metabolic processes essential for milk production.

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