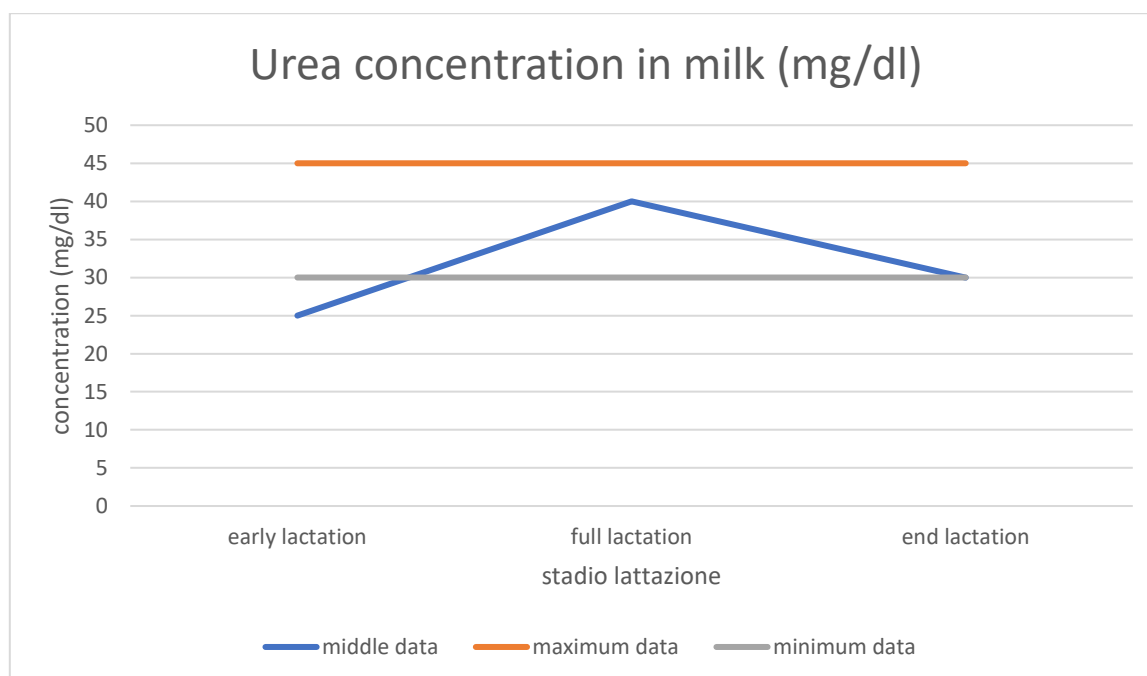


Urea in milk

Problem: A good indicator of the efficiency of ingestion and utilization of dietary proteins is represented by the concentration of urea in milk. Urea derives from the transformation in the liver of ammonia which in turn derives from the protein derived from food and other non-protein nitrogen sources. High levels of urea in milk can result from excess protein intake, especially degradable protein fractions, in the ration and from a low intake of fermentable carbohydrates. The consequences are attributable to digestive disorders both in the rumen and in the intestine (with consequent production of bacterial toxins and histamine), increase in the content of somatic milk cells, systemic inflammatory states that can give rise to mammary edema, laminitis and decrease in fertility. On the contrary, too low levels of urea in milk can indicate a protein deficiency in the ration, an excess of low degradability proteins in the rumen (by-pass proteins) with consequences such as a decrease in the ability to ingest food and its digestibility, a decrease in the production and bacterial proteins in the rumen.

Solutions:



Monitoring the urea value in the milk allows you to assess whether there are errors of food or management of the flock. The reference values for sheep generally range from 30 to 45 mg / dl of urea in milk. These values, in addition to nutritional factors, are also influenced by the breed of the animal, by the number and stage of lactation (these concentrations are usually higher in primiparous and lower at the beginning of lactation), by the daily production, by the number of somatic cells, from the season and from the time of milking.

Practical recommendations:

-make sure that the balance between degradable protein in the rumen and fermentable carbohydrates is adequate by combining foods appropriately and ensuring a plurality of protein and energy sources in the ration. It is generally recommended to use at least 2-3 sources of starch with different fermentability and at least 2-3 sources of protein with different degradability. The use of modern rationing systems such as CNCPS allows a correct evaluation of foods and their optimal combination. Since there is a direct

proportionality between the crude protein content of the urea ration in the milk, it is recommended not to exceed 18% of the crude protein content in the ration to maintain urea levels below 45 mg / dL.

- the use of very young pastures, especially of legumes, involves an excess of ingestion of soluble protein and non-protein nitrogen with consequent excesses of urea in the milk. At the same time, the low amount of fiber leads to a reduction in milk fat. Grazing on such turf should therefore be timed and combined with sources of starch and forage rich in digestible fiber.

- combining starch sources with protein sources taking into account the respective gradient of rumen fermentability of carbohydrates and rumen degradability of proteins. An adequate balancing of this gradient allows to maximize the production of microbial protein and to contain the loss of ammonia from the rumen and the consequent rise of urea in the milk. The amount of microbial protein should be at least 60% of the metabolizable protein available in the intestine.