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BOVINE COLOSTRUM MANAGEMENT AND THE FACTORS INFLUENCING ITS QUALITY

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Abstract: *The mammary gland's secretion, called colostrum, is synthesized throughout the last weeks of pregnancy and the first few days following calving. It is meant to give the calf the necessary nutrients and physiologically active substances. High immunoglobulin concentration and low pathogen load define high-quality colostrum. The amount and quality of colostrum that is available and the timing of the first feeding after birth both have an impact on the level of immunity. Heifers produce substantially less colostrum than cows do, and the breed has a big impact as well. Colostrum handling and storage techniques, as well as milking procedures are essential steps toward quality colostrum management on dairy farms. This review focuses on colostrum management, methods, and techniques for assessing colostrum quality and the factors that influence bovine colostrum quality.*

• Introduction

- Colostrum is a mammary gland fluid that is produced and amassed throughout the last trimester of pregnancy and the first few days following calving. The calf will receive the essential nutrients and biologically active components from it. Animal rearing is one of the most challenging phases of life, and the most delicate time is immediately following birth.

- Colostrum has qualities that promote the endocrine and immune systems' normal operation as well as its own regulatory role, which drives the growth of the developing organism. Because the immunoglobulins in colostrum are absorbed within the first 16–27 hours of a calf's life, preferably within the first 2-4 hours, colostrum must be given as soon as possible after birth in order to perform its function.

- The variety in colostrum quality is caused by both individual differences and environmental variables, such as parity, pre-partum food, season, breed, length of the dry period, immunization of the dam, delayed colostrum collection, abortions, or cow health. Colostrum, as is well known, has a significant impact on the wellbeing of calves and future outcomes.

Material and method

- Inadequate colostrum management techniques, including as colostrum feeding procedures and on-farm colostrum storage procedures, may have an impact on the immunological components of colostrum and, consequently, the newborn calf's immune condition.

• Results and discussions

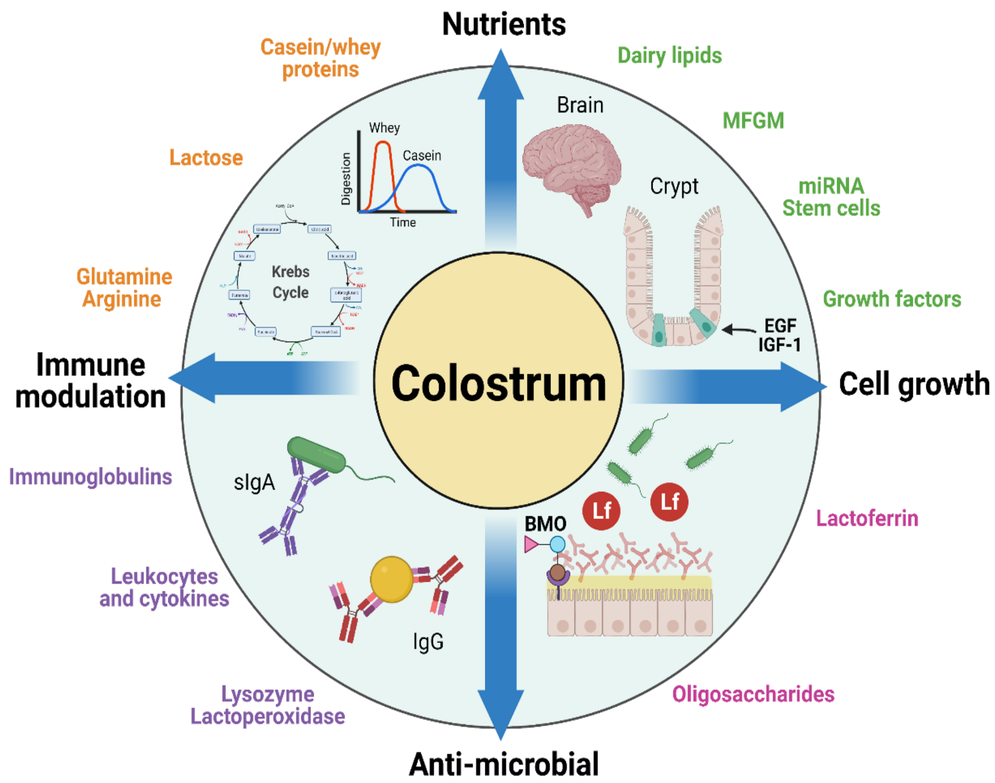

Figure 1. Nutritional and bioactive components present in bovine colostrum. The figure shows some of the key biological functions of bovine colostrum components related to their partially overlapping nutritional, immunomodulatory, antimicrobial, and cell-growth functions.
(Created with BioRender.com; accessed on 7 June 2021)

Conclusions

- ✓ Methods for milking, handling and storing colostrum, and administration techniques were all outlined as main steps. IgG concentration in colostrum decreases over time, hence it should be milked as soon as possible.

- ✓ Colostrum should be pasteurized in small batches for 30 or 60 minutes at a maximum temperature of 60 ° C to reduce bacterial contamination. As long as thawing is done au bain-marie and the temperature does not rise above 40°C, freezing and thawing of colostrum do not impact IgG concentrations.