

## Colostrum Management for Dairy Goat Kids: A Critical Practice for Survival

### The Importance of Colostrum for Dairy Goat Kids

Proper colostrum management is crucial for the health and survival of dairy goat kids. Colostrum provides essential nutrients and immune protection, which are vital for newborns, who are born without the natural immunity required to defend against environmental pathogens. Given that 50% of deaths in goat kids occur within the first 24 hours due to lack of colostrum, feeding high-quality colostrum soon after birth is paramount to ensuring their survival.

In this article, we explore the importance of colostrum, its nutritional composition, and the essential role it plays in preventing early diseases in goat kids. Additionally, we discuss colostrum management protocols, including the use of alternative colostrum sources, precautions regarding colostrum contamination to ensure it is safe for consumption.

### Nutritional Composition of Colostrum

Colostrum is rich in nutrients that support the health of newborns:

**Energy (fats):** Helps to regulate body temperature and prevent hypothermia.

**Proteins (Immunoglobulins):** IgG antibodies are essential for immune protection against pathogens.

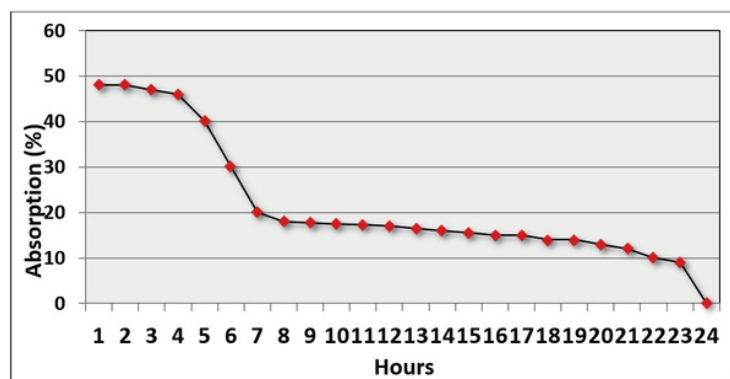
**Vitamins:** Fat-soluble vitamins like A, D, and E support immune function, growth, and bone development.

**Minerals:** Essential elements like calcium, selenium, and magnesium support skeletal development and metabolic functions.

## Colostrum Management Protocol: Timing, Quantity, and Quality

Effective colostrum management includes consideration of the timing, quantity, quality and cleanliness of colostrum:

1. Timing: The absorption of antibodies is most efficient within the first hours of life when the kid's intestine can absorb large proteins like immunoglobulins. Some literature suggests that the 'open gut' period lasts up to 24 hours, while other studies indicate it may extend up to 36 hours. However, it's generally agreed that colostrum should be fed as soon as possible, ideally within 2 hours after birth, to maximize immunity.



The Compendium 15:335-342, 1993

2. Quantity: Newborn goat kids should receive 15-20% of their body weight in colostrum within the first 24 hours. This can be broken down into several feedings, starting with 5-7% BW in the first feed, followed by smaller feedings to reach the target. For example, a 3 kg kid should receive about 150-210 ml in the first feeding.

3. Quality: High-quality colostrum contains more than 50 grams of IgG per liter, measured using a Brix refractometer reading above 25%. Intermediate quality colostrum falls between 22-25% Brix (around 20-50 grams IgG/L), while low-quality colostrum has less than 20 grams IgG/L (below 19% Brix). Ensuring that the colostrum has sufficient IgG is vital for providing adequate immune protection to the kid.

## Artificial Feeding Methods: Bottle or Tube

Colostrum should be fed at body temperature, around 38.5-39.5°C, which is the normal body temperature of a newborn kid. Bottle feeding is the preferred method because it allows the kid to suckle naturally, but tube feeding can be used if the kid is too weak to suckle. Tube feeding ensures that the kid receives the necessary volume, but it requires skill and caution to avoid injuring the kid or causing aspiration pneumonia. The maximum stomach capacity of a newborn goat kid is approximately 7-10% of its body weight, so care should be taken not to overfeed.

## IgG Requirements for Goat Kids

The amount of immunoglobulin G (IgG) that a newborn goat kid should receive is critical to ensuring proper transfer of passive immunity. The recommended minimum IgG intake is between 8.7 and 13 grams per kilogram of body weight. For instance, a 3 kg kid would need between 26.1 to 39 grams of IgG within the first 24 hours to ensure adequate immune protection. This guideline is backed by research that shows kids receiving less than this amount of IgG are more susceptible to fail on the transfer of passive immunity and to have higher morbidity and mortality.

## Alternative Colostrum Sources for Goat Kids

In situations where maternal colostrum is contaminated, unavailable, insufficient, or with not enough quality, alternative colostrum sources can be used:

1. Colostrum from Another Goat: If available, colostrum from another healthy doe can be used. Excess colostrum from does should be collected and frozen in small, single-feeding portions (200-250 ml). Frozen colostrum should be thawed in a warm water bath below 50°C/122°F to preserve the nutrients and immunoglobulin content.

2. Colostrum Replacer: Commercial colostrum replacers are available and provide a good substitute for maternal colostrum. These products are often bovine-based and formulated to deliver at least 50g of IgG per liter, which is equivalent to high-quality goat colostrum. A good replacer should raise IgG concentration in the kid's serum above 15 grams per liter, providing sufficient protection.

### Precautions for Using Colostrum

Care must be taken when selecting colostrum sources, as contaminated colostrum can pose serious health risks to newborn kids. Avoid feeding colostrum from does affected by:

- Caprine Arthritic Encephalitis (CAE)
- Mycoplasma
- Caseous Lymphadenitis (CL)

These pathogens can be transmitted to the kid through colostrum, causing long-term health issues or even death. In herds where these diseases are a concern, pasteurizing colostrum or using commercial colostrum replacers may be the safest option.

### References

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### Conclusion and Summary

In conclusion, effective colostrum management is essential for the health and survival of dairy goat kids. Key points include:

- Feeding high-quality colostrum within the first 2 hours of life to ensure the absorption of essential antibodies.
- Providing a total of 15-20% of the kid's body weight in colostrum within the first 24 hours, with at least 8.7-13 grams of IgG per kilogram of body weight.
- Using alternative colostrum sources when necessary, while ensuring proper handling and avoiding disease transmission through contaminated colostrum.

By adhering to these guidelines, goat farmers can significantly reduce mortality rates and improve the overall health and vitality of their herds.