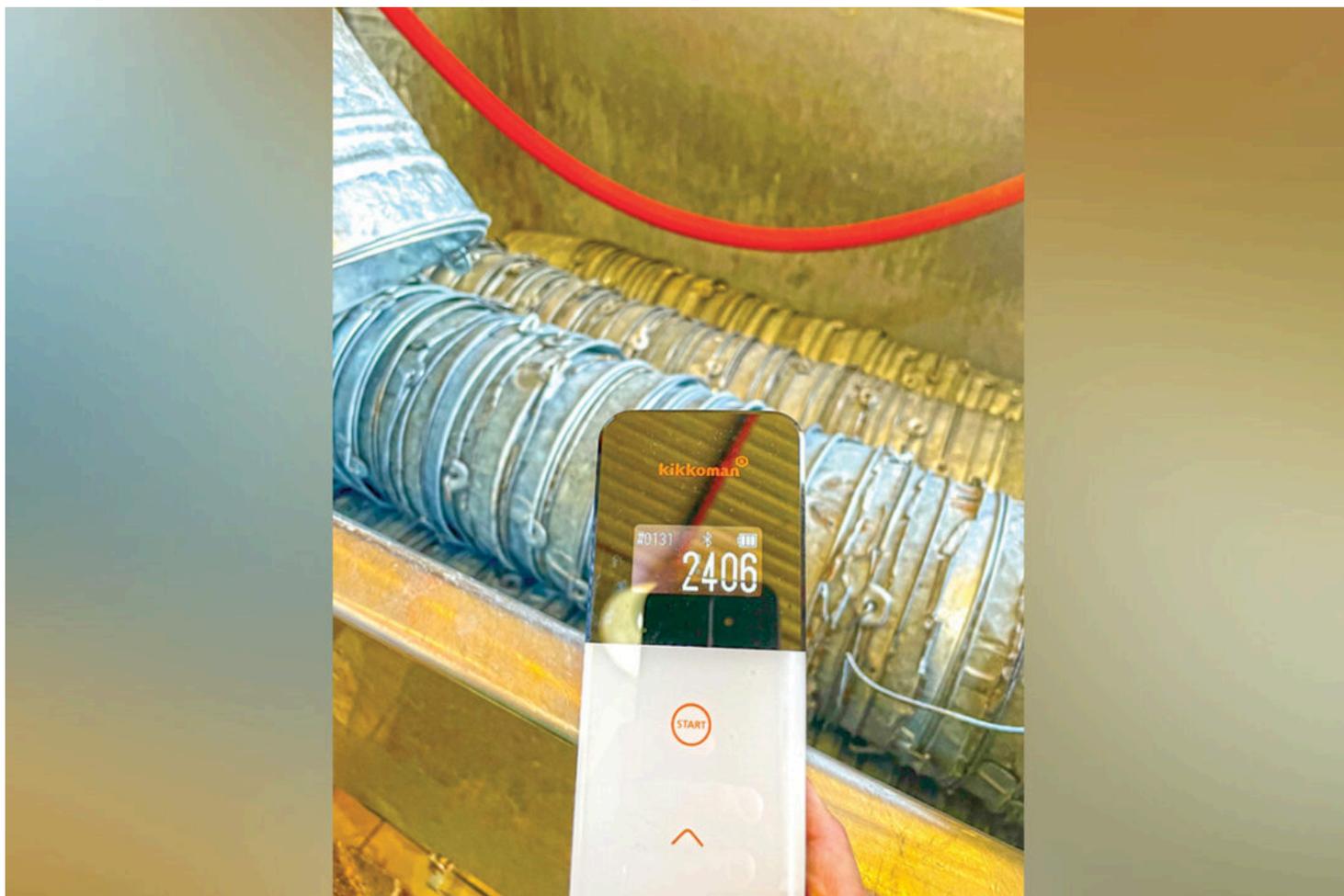


[www.agproud.com/articles/61352-day-old-calf-nonnegotiables](http://www.agproud.com/articles/61352-day-old-calf-nonnegotiables)



During on-farm inspections to improve calf care protocols, we've found that often looks can be deceiving and although surfaces look clean, they are not. Here is a 'high' reading on feeding buckets. We also often see high values on pipeline junctions and spout areas in pasteurizer systems. These hidden spots can harbor bacteria. *Courtesy image.*

## Day-old calf nonnegotiables

Colostrum is the key to healthy calves. To maximize its benefits, farms need to have strict protocols ensuring calves receive quality colostrum quickly and at adequate levels.

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Feeding adequate levels of clean, high-quality colostrum has been a fundamental part of day-one calf management for quite some time. Despite widespread awareness of its importance, many farms still struggle with proper colostrum management protocols. Through our experience of working with numerous dairies to troubleshoot early calf health challenges, we've identified several critical, nonnegotiable management practices.

These nonnegotiable practices or protocols are essential for ensuring effective colostrum handling and, ultimately, for getting your calves off to a healthy start. Just as good colostrum management can promote early calf health and performance, poor colostrum management can have the opposite effect and lead to health challenges that can affect the calf throughout its entire life.

Here are the top five nonnegotiables we have identified.

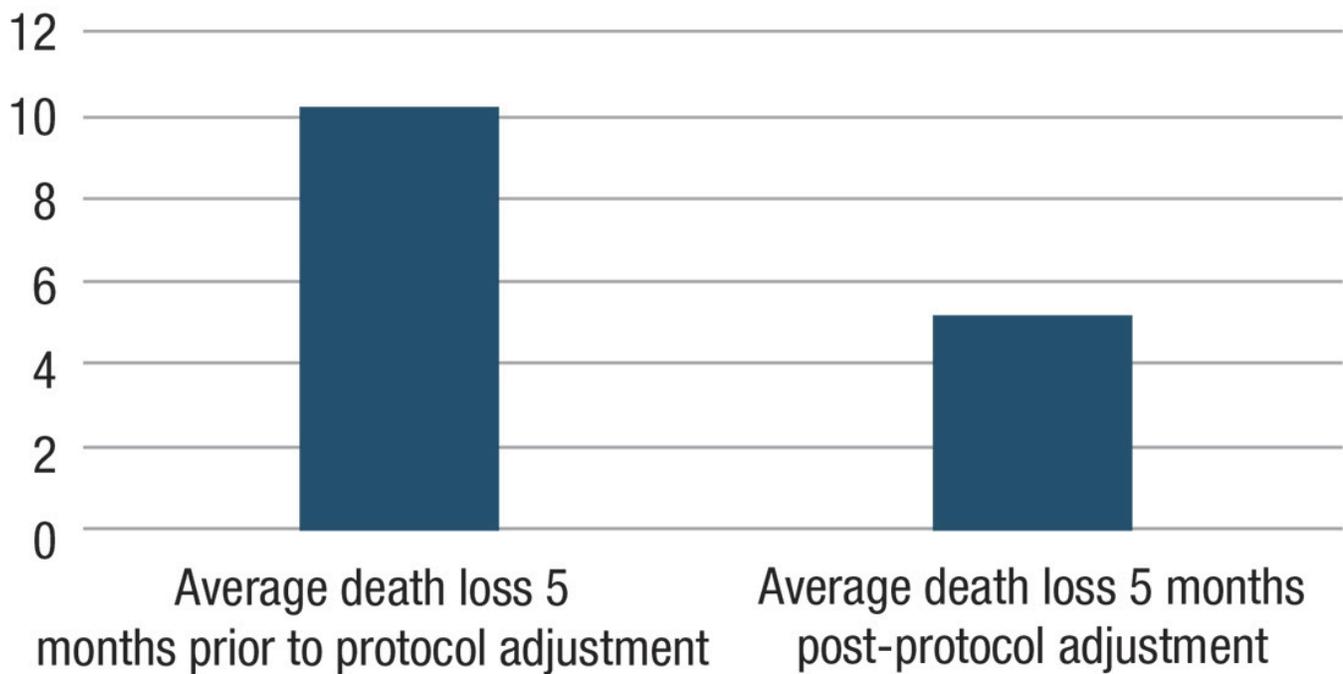
## **1. Follow proper cleaning and drying protocols**

All of the work to harvest high-quality colostrum goes to waste if the equipment you use to collect, store and feed it is not clean.

During one farm visit, we observed a bucket used to collect colostrum at freshening. The maternity pen employees were responsible for washing the bucket between calvings; however, they strayed from protocol during a heavy calving period where multiple cows had to be milked in succession. Instead of resuming proper cleaning procedures, the bucket was simply rinsed and left to sit for hours. When we swabbed the bucket with a Lumitester, the readings were alarmingly high – 3,452 lumens. (For reference, any plastic or porous equipment should register below 500 lumens, and anything made from stainless steel should be under 200 lumens.)

**FIGURE 1**

Average death loss pre- and post-washing protocol



The table shows the average calf death loss on a New York dairy prior to and after changing the protocol for washing the bucket used to collect colostrum.

To address this issue, we worked with the farm team to establish a protocol requiring a thorough wash after every three consecutive milkings, or after each cow if more than 30 minutes passed between milkings. Protocols were written and posted for all maternity employees to follow. After making these adjustments, we retested the bucket, and the reading dropped to a more favorable 88 lumens. (See **Figure 1** for how this protocol change impacted death loss on the farm.)

To ensure consistently clean equipment and high-quality colostrum, implementing a structured cleaning protocol is essential. Based on our on-farm observations and testing, here's an effective equipment cleaning protocol to follow:

1. Rinse with lukewarm water that is approximately 100°F (warmer water can cause a protein film to form from degradation, and colder water can cause fat films to form).
2. Scrub with detergent in hot water that is approximately 140°F; this helps remove residue and break down biofilms.
3. Rinse with lukewarm water.
4. Rinse with an acid solution and warm water.
5. Rinse again with lukewarm water.
6. Sanitize with a chlorine dioxide product to kill remaining bacteria.
7. Dry properly. Do not leave equipment upright where it can be exposed to manure or trap water, both of which create ideal environments for bacterial growth. Instead, place all clean equipment in

a dry, sanitary location. Store equipment upside down on racks. If space is limited, consider a wall-mounted drying rack pegboard.

## 2. Routinely measure bacterial load

Even if colostrum has high immunoglobulin (IgG) levels, bacteria can block their passage or bind to IgG to prevent absorption in your calf's gut. Therefore, it is important to routinely check the bacterial levels of your equipment using an ATP meter to ensure that your cleaning protocols are effectively eliminating potential contaminants.

If keeping your equipment clean is a challenge, you may benefit from switching to a colostrum replacer. One farm we worked with was experiencing an outbreak of multidrug-resistant enterotoxigenic *E. Coli* and faced scours in newborn calves along with a preweaning death loss of approximately 10%. In fact, many calves did not survive beyond the first two days of life. After completely replacing maternal colostrum, the preweaning death loss dropped to just 3.5%.

## 3. Maintain or replace esophageal feeders routinely and monitor pasteurization temperature

Maintaining and monitoring equipment is a must.

On one farm, the bottles and esophageal feeders were cleaned using the same protocol. However, the esophageal feeder tubes were visibly scratched, and they could not be cleaned as well as the inside of the bottle (**Table 1**). Bacteria harboring in the crevices (formed from scratches caused by teeth or everyday handling) can contaminate the colostrum and reduce IgG absorption. The farm replaced the esophageal feeders and now routinely inspect and replace damaged feeding equipment. This action along with other changes has led to a drastic reduction in the death loss – once pushing 20%, it is now less than 10% at this farm. Attention to detail is key when looking for day-one success.

<b>TABLE 1</b>		Actual lumens reading on farm equipment	
Item swabbed		Lumens reading	
Esophageal feeder – outside of tube		>9,000	
Esophageal feeder – inside of bottle		4	

Also remember to routinely check pasteurization equipment to confirm it's functioning at the proper temperature. If the temperature is too low, bacteria multiply rapidly; if too high, antibodies are denatured. The recommended standard is 140°F for 60 minutes to ensure both bacterial control and antibody preservation.

## 4. Routinely measure colostrum quality and feeding protocols

Regularly assess colostrum quality and feeding practices, aiming to deliver 300 IgG on day one. Consider enriching colostrum to deliver adequate IgG levels, as needed.

One dairy that we work with, which has 60 to 70 calves born per month, began enriching maternal colostrum to provide every calf with consistent nutrition in its first feeding. As **Table 2** shows, this change significantly reduced the dairy's death loss among calves.

<b>TABLE 2</b>		Farm % death loss pre- and post-use of colostrum enrichment
Example farm		% death loss
Prior to enrichment		3.9%
After enrichment		2.1%

Another dairy saw significant improvements in passive transfer rates after implementing colostrum enrichment. The percentage of calves categorized as having good or excellent passive transfer increased from 59% to 93%, demonstrating the effectiveness of enrichment.

## 5. Properly cool and store colostrum

Through multiple calf audits, we have found that many producers underestimate how long it takes for colostrum to cool properly in a refrigerator or freezer – especially when storing large quantities. If colostrum remains warm for too long, bacteria have the opportunity to multiply, potentially compromising calf health.

In one case, we revisited a farm in the evening and found that colostrum collected that morning was still above ambient temperature in the fridge. The issue – poor cooling capacity and excessive colostrum volume prevented timely cooling.

Every effort should be made to cool colostrum as quickly as possible after harvest to prevent bacterial growth. For more rapid cooling, place colostrum in a 1-gallon freezer bag. Then, move it quickly to an ice bath. Ideally, colostrum should be chilled to at least 60°F within a half hour. Cornell University College of Veterinary Medicine recommends using an ice-water bath as described above or putting clean plastic bottles containing ice into colostrum. Ice-containing bottles should be added at the rate of 1 quart of ice to 1 gallon of colostrum.

Cooling colostrum quickly is more easily achieved using clean freezer-weight bags. Flat bags will also thaw more evenly than large bottles. Colostrum can be frozen for up to one year without sacrificing quality.

## **The key to a strong start**

Giving calves a strong start is key to preventing health challenges and maximizing their genetic potential. It all starts with providing adequate levels of high-quality colostrum to that newborn calf as soon as possible, which requires strict adherence to colostrum management protocols. Consistently following these nonnegotiable best practices ensures healthier calves and better long-term performance.