Dairy Pipeline

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Farm Safety: Protecting Ourselves and Our Communities

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Farming is a profession that demands hard work, dedication, and a constant awareness of the hazards that come with the territory. From operating heavy machinery to working around livestock and crops, the risks on the farm are numerous. In fact, agriculture remains one of the most dangerous industries, with a fatal injury rate nearly seven times higher than the national average for all industries. As farmers work to provide for their communities, they must prioritize farm safety to protect themselves, their families, and employees.

Grain bins, in particular, present significant risks on the farm. During the recent Grain Bin Entrapment Program in Franklin County, we focused on providing vital training to first responders, equipping them with the tools they need to handle grain entrapments safely and efficiently. This training hosted two groups: community members and fire and rescue members. In total, over 65 individuals attended the community training and 18 firefighters and first responders, representing 10 different departments and agencies were trained and certified. Every year, too many farmers and farm employees are caught in grain bins, a deadly situation that can quickly lead to suffocation. Tragically, statistics show that nearly 30 workers lose their lives each year due to grain engulfment, underscoring the need for better awareness and training in farm safety. Trainings like the one held in Franklin County function to teach farmers about on the farm safety and train rescue personnel to act swiftly, effectively, and efficiently.

Some of the major takeaways from this training could apply to any farm in an emergency situation.

1. Be aware of overhead electrical lines. When rescue personnel arrive with emergency vehicles, those are generally 10-12.5 feet tall and overhead electrical lines pose serious potential danger.
2. Know where the electrical shut off is for all buildings, grain bins, and other on the farm structures.
3. In the case of a grain bin entrapment, be aware that emergency vehicles will need a large area of access to the bin.

The inside of a grain bin is considered a confined space and therefore, proper equipment is necessary to enter the bin. Safety isn't just about avoiding physical hazards—it's about being prepared to act when something goes wrong. Through the grain bin program and other initiatives, farmers, their families, and employees are learning about the importance of first aid, CPR, and Stop the Bleed training. When accidents happen, every second counts. Having the ability to perform CPR or stop life-threatening bleeding can make a world of difference before medical professionals arrive.

These simple, life-saving skills can drastically improve the outcome of an emergency situation, especially on rural farms where emergency services may be some distance away.

The good news is that many of the injuries and fatalities we see on farms can be prevented. By taking a proactive approach to safety, being aware of potential risks, and making sure that everyone on the farm is equipped with the necessary knowledge and skills, can drastically reduce accidents. Safety is not just about protecting yourself—it's about ensuring that everyone can continue to do the work they love, provide for their families, and contribute to the communities that rely on farmers.

Farm safety is an ongoing commitment. Whether it's understanding the importance of knowing where electrical lines are, staying alert around grain bins, or ensuring you and your team are trained in first aid and emergency response, we must all do our part. The farming community supports each other, and we owe it to ourselves and each other to make safety a priority every day.

To learn more about ongoing Farmer Stop the Bleed, First Aid, and CPR classes being offered in Franklin County or to find out how your community could host a Grain Bin Entrapment program, please contact Cynthia Martel, ANR, Dairy Science Extension Agent at cmartel@vt.edu or 540-483-5161.

Keep it clean!

Authored by Robert E. James, Professor Emeritus, Dairy Science, Virginia Tech; and Calf Blogger at Calfblog.com; jamesre@vt.edu

All too often we tend to be too casual about cleanliness in raising preweaned calves, **especially** during their first week of life. Remember that this is a very young animal with a "biology" that's not too different from human infants. They are born with a very limited (if any) microbiome that is in a state of flux during the first days or weeks of life. This is a time that can have a significant impact on their life and health if they get off to the wrong start! Consider the following and how they might have an impact on the newborn and preweaned calf.

- **Maternity environment.** Where does the cow calve? Is it a nice grassy pasture or a dark poorly bedded and ventilated box stall. The type and number of bacteria available to colonize the newborn calf can be very different. Research at Virginia Tech found that there are different populations existing in the lumen and the mucous layer of the intestine at levels as high as 100,000 cfu/g of tissue within hours of birth. Are they beneficial or harmful to future health?
- **Colostrum** should be either fed immediately after harvest or cooled to < 40F or 4C within 1 hour of harvest. As it comes from the cow, the target level should be < 1,000 bacteria/ml. Studies by Minnesota researchers found that more than 90% of colostrum samples contained more than 100,000 bacteria/ml. Median total plate count was 615,000,000 bacteria/ml! Other studies by this group and Virginia Tech researchers found a high, negative correlation between bacteria counts and IgG absorption. It is recommended that colostrum should contain less than 50,000 bacteria. This author has worked with farms that routinely achieve counts less than 5,000 bacteria.

Figure 1. Dam and newborn calf on pasture.

Keys for "keeping it clean" and promoting successful colostrum management.

- **Maternity environment.** A well-drained, grassy pasture is optimal but not very practical for most dairy businesses throughout the year. The second choice is a clean, box stall deep bedded with clean

straw that is cleaned often depending on calving pressure. This determines the type and number of bacteria that the calf may ingest shortly after birth.

- **A clean calf**. The author is familiar with a farm that washes and blow-dries every calf within 30 minutes of birth. Respiratory and digestive diseases are exceptionally low in these calves.
- **Colostrum handling.** Follow protocols that one follows with the production of saleable milk. Milking into clean vessels or pipelines followed by prompt cooling or feeding. Increasingly, farms have chosen to heat treat colostrum (slightly lower temperature for longer times) followed by prompt cooling and storage in clean vessels. Colostrum handling systems that include single use esophageal feeders and attached "bags" that hold 4 quarts are recommended.
- **Clean bottles.** When calves are bottle fed are they clean enough?
- **Simple cleaning protocols** for all colostrum handling, storage and feeding are as follows:
    1. Rinse surfaces with lukewarm water (90F, 30C). Hot water causes biofilms to develop which can harbor bacteria.
    2. Wash thoroughly with hot (135F – 57C), soapy water. Use a 1% chlorinated alkaline detergent.
    3. Rinse again with cold water and a second rinse with acid solution (pH 2 – 3) and 50ppm chlorine dioxide.
    4. Drain and allow to dry.
- Liquid diet – Milk or milk replacer
    - **Milk** may be best for calves IF quality is maintained. That means treating it with the same precautions used for saleable milk. This can be challenging in limiting bacterial growth between harvest and consumption by the calf! It requires rapid cooling after harvest, storage in clean vessels and heating to desired temperature (101- 110) for feeding to the calves. **Milk replacer** starts with lower bacterial growth and it's easier to maintain this until the calf consumes it.
    - **Bottle or bucket feeding.** Bottles have a distinct advantage in that the amount of time between mixing the diet and consumption by the calf is usually much less. Bucket feeding is problematic in that the vessel or tank used to transport milk to the calf must be cleaned as well as the bucket. Buckets are generally not cleaned between feedings or even daily. On most farms water may be fed in the same bucket as milk resulting in higher bacterial counts in the drinking water.
- **Autofeeders**. Most autofeeder systems will automatically clean the interior surfaces of the system with a detergent and sanitizer and spray the nipple between calves.
- **Waterers**. They should be cleaned daily and rinsed with a dilute chlorine solution to retard bacterial growth and reduce organic matter.
- **Calf housing**. As milk is frequently limit-fed or fed only twice a day calves will frequently suck on the housing. Ideally there should be a "rest period" of at least a week between populating hutches with new calves.
- **Biosecurity.** We tend to forget this last factor. Let's limit spread of disease from calf to calf!
    - First use rubber gloves and change between calves. How often have you "trained" the calf to drink from a bottle by allowing it to "suck" your fingers?
    - Second, start working with the youngest calves first and then move to older calves

- Don't allow personnel, including the DVM, to work cows and then move to the preweaned calf pen. Restrict outside visitors from contact with your calves. Insist on single use shoe covers or boots that have been sanitized well.

The ultimate test of cleanliness is this*: Would you drink it?* If not, don't feed it to a young animal. This list seems to be overwhelming at times. However, it is recommended that systems be developed to address these challenges. Would you rather spend time preventing disease or treating sick calves?

Reprinted from https://calfblog.foerster-technik.com/

Upcoming Events

March 5, 2025 - DEADLINE for Southeast Dairy Business Innovation Initiative Grants
-Farm Infrastructure Improvement Grant
-Precision Technology Management Grant

March 7, 2025
Spring Dairy workshop with Dr. Larry Tranel
Montezuma Hall, Dayton, VA

March 15, 2025
State 4-H Dairy Quiz Bowl
Blacksburg, VA

March 21-22, 2025
First Annual Farm Toy Show sponsored by the Southwest VA 4-H Tractor Club
Abingdon, VA

March 24, 2025
Agribusiness Producer meeting
Blackstone, VA

March 29, 2025
Youth Farm Safety Day
Harrisonburg, VA

April 2 & 3, 2025
Dairy Management Institute
Rocky Mount – April 2
Dayton – April 3

April 9, 2025
Agribusiness Producer meeting
Harrisonburg, VA

April 12, 2025
Little All-American
Blacksburg, VA

May 10, 2025
Dairy Foods workshop w/ Dr. Bob Horton
10:00 – 12:00: Orange, VA
2:00 – 4:00: Harrisonburg, VA

May 13-14, 2025
VFGC Basic Grazing School
Madison, VA

If you are a person with a disability and require any auxiliary aids, services, or other accommodations for any Extension event, please discuss your accommodation needs with the Extension staff at your local Extension office at least 1 week prior to the event.

Additional Notes:

▪ The dairy extension group is working with VDH to assist in distributing PPE to dairy farms. Request a kit online at https://shorturl.at/ethov or contact your local extension agent. Requests will be filled as supplies allow.

▪ Your input could guide future programming! Please complete the short survey at https://tinyurl.com/dairy-extension.

For more information on Dairy Extension or to learn more about our current programs, visit us at VTDairy—Home of the Dairy Extension Program online at www.sas.vt.edu/extension/vtdairy.html

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