



Make Time for Farm Safety

—Laura Siegle, ANR Extension Agent, Amelia County; laurab08@vt.edu

Unfortunately, we tend to discuss farm safety after we hear bad news. There are plenty of ways to get hurt on a farm and accidents happen even to the most careful people. However, being proactive whenever possible is preferable to reacting later.

Equipment causes some of the most common farm accidents. Machinery provides risks for pinching, crushing, entanglement, cutting and shearing, thrown objects when a machine rotates or spins, burns from hot machine parts, and more. As a high schooler working on a dairy, I recall being warned most often about—and hearing many scary stories relating to—PTO shafts. As a young person, I simply had never thought about the possibility of getting a piece of clothing caught in a PTO until I was warned, so consider this a reminder to alert children and workers about accidents that can occur when equipment spins or has a feed-in area. To avoid accidents, ensure that equipment has intact safety guards at all times and that no one ever steps over a driveshaft under power.

Co-opt the industrial mentality of “lockout-tagout” by following the same thought process with equipment repairs. When working on equipment or dislodging any sort of mess in the field, turn off the equipment, remove the key and keep it with you. You can read more—and share info with employees—about equipment safety at VCE publication #442-092.

Farmers must contend with dangers in grain bins, silos, and bunkers. For dairy farms in particular where silage bunkers and piles are common, it can be easy to forget about the possibility of a silage avalanche, which can injure or bury a nearby person quickly as they collect samples or run equipment. Check out the information and video that the VT Department of Dairy Science produced on preventing injuries and fatalities around silage—it is available in English and Spanish: https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/DASC/dasc-103/DASC-103.pdf

Safety around grain bins is a matter of grave importance, as a person inside a bin can be-

come entrapped when crusted grain collapses or an auger is running. OSHA says: “Standing on moving grain is deadly; the grain can act like ‘quicksand’ and bury a worker in seconds. Moving grain out of a bin while a worker is in the bin creates a suction that can pull the workers into the grain in seconds.” OSHA also offers a number of steps to prevent a disaster when a person must enter a bin after all powered equipment has been shut off and locked out:

- ▶ Prohibit walking down grain and similar practices where an employee walks on grain to make it flow.
- ▶ Provide all employees a body harness with a lifeline, or a boatswains chair, and ensure that it is secured prior to the employee entering the bin.
- ▶ Provide an observer stationed outside the bin or silo being entered by an employee. Ensure the observer is equipped to provide assistance and that their only task is to continuously track the employee in the bin.
- ▶ Prohibit workers from entry into bins or silos underneath a bridging condition, or where a build-up of grain products on the sides could fall and bury them.
- ▶ Test the air within a bin or silo prior to entry for the presence of combustible and toxic gases, and to determine if there is sufficient oxygen (find more tips like these at <https://www.osha.gov/SLTC/grainhandling/>).

Confined spaces and the air around manure pits and lagoons are also dangers. Deadly gases can accumulate with no odor to alert you to their presence. Learn about monitoring gases before entering these areas at <https://www.agrisafe.org/air-quality-monitoring>.

There are many other health and safety considerations on the farm. We must think about safe ATV operation, as many youth are injured in ATV accidents. There is also road safety, which can be a difficult matter when other drivers on the road are part of the equation. Farm safety even means calling 811 “before you dig” to ensure that you do not hit a pipeline as you work on farm projects (visit <http://www.pipelineagsafety.org/>).

You must also consider the less obvious risks to your health that can accumulate over time. Do

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Visit the Virginia Cooperative Extension website at www.ext.vt.edu to access all of our publications, and sort by topic, like “farm health and safety”.



Upcoming Events

See [VTDairy](#) for details.

Farm Transition and Financial Planning Workshops

(Franklin)

July 2—Grain Marketing

July 29—QuickBooks Training

TBA—Value Added

TBA—Appraisals

July 7-11—Southeast Dairy Youth Retreat, Orange, VA

July 12—VA Dairy Expo, Blackstone, VA

July 15-17—Ag Summer Camp with the Y programs (Franklin Co. & surrounding areas)

July—Summer Workshops Rockingham (TBA)

July 31—Farmer Mental Health Training Workshop, Virginia Tech

August 1—Virginia Colored Breed Show and District Holstein Show

August 2—Farm Safety Day

August 2—Dairy Farmer Appreciation Dinner, Rockingham County Fairgrounds

August 3—Virginia Holstein Show

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.

For more information on Dairy Extension or to learn about current programs, visit us at VT Dairy—Home of the Dairy Extension Program on the web at: www.vtdairy.dasc.vt.edu.



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you protect yourself with sunscreen 30 SPF or higher for extended time in the sun, as recommended by the Skin Cancer Foundation? Do you strictly follow the personal protective equipment requirements on every pesticide label? “The label is the law”, after all. Do you protect yourself from tick bites and tick-borne diseases and remove ticks properly? Hint: visit the CDC’s resources at <https://www.cdc.gov/ticks/index.html> or the Virginia Department of

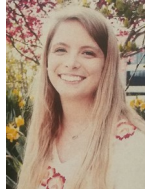
Health.

Now is a good time to develop an emergency preparedness plan to help your household stay safe in a crisis. For information about an emergency preparedness kit and steps you can take, visit https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/3104/3104-1590/3104-1590_PDF_fact_sheet.pdf.

For more information, contact your local extension agent.

Live yeast supplementation: creating a more efficient and profitable dairy cow

—Emily Richardson, MS student with Dr. Gonzalo Ferreira, gconf@vt.edu



Direct-fed microbials (DFM) are anything but novel terms in the field of dairy nutrition. Specifically, nutritionists have been known for supplementing the diet of lactating

dairy cows with DFM. Live yeast is the most popular DFM in the feed industry, due to its beneficial effects on rumen function and milk production. In the current economic state of the dairy industry, it is crucial to ensure that every ingredient in today’s lactating cow diet is beneficial in a cost-effective manner. Therefore, confirmation of the effects of feeding live yeast products on digestion and milk production are rightfully warranted.

There are two types of yeast-derived direct-fed microbials, live *Saccharomyces cerevisiae* and non-live *Saccharomyces cerevisiae*. Live *S. cerevisiae* is the most commonly used yeast-derived DFM. There is more literature supporting the effects of live yeast strains on rumen function and digestibility than studies on non-live yeast strains. One recent study found that both live yeast strains and non-live yeast strains increased fiber digestibility, which may spark more interest in using non-live yeast strains (Jiang et al., 2017). Currently, it is more assuring to pick live yeast as a supplement to achieve the desired digestibility benefits.

As antibiotic use becomes more regulated, alternatives to change the cow’s gut microbiota have been more thoroughly researched. Live yeast additives are comparable to antibiotics due to their ability to change the variety of organisms in the gastrointestinal tract. This change is accomplished by live yeast strains lowering the redox potential of the rumen.

The rumen is designed to function optimally as an anaerobic environment. Although, this environment can be easily disturbed by the

introduction of small oxygen molecules by feed ingestion. When live yeast is included in the feed ration, these oxygen molecules are used for the yeast’s metabolism. This act decreases the potential for oxidation in the rumen and allows anaerobic bacteria strains to thrive, resulting in increased digestibility and stability of the rumen (Newbold et al. 1996).

One of the most popular ways to determine this increased stability is to measure the pH of the rumen. Less fluctuation in rumen pH leads to less chance of cows being diagnosed with acidosis. Acidosis occurs once large amounts of rapidly fermentable carbohydrates are ingested, which increases

volatile fatty acid (VFA) and lactic acid production. This overload of VFAs and lactic acid leads to a decrease in rumen pH. The stabilization of the microbiota from feeding live yeast additives is shown in a greater effect with diets containing high amounts of concentrate. This leads to the stabilization of rumen pH to around 6. Therefore, live yeast allows consumption of a variety of diets without compromising rumen function.

The financial implications are significant when live yeast is not supplemented into a lactating cow’s diet. Along with an increased risk of acidosis, the potential for increased milk components are lost. In a study by Meller et al. (2014), both milk fat and protein were shown to increase with the inclusion of the live yeast strain *Saccharomyces cerevisiae*. With a decreased risk of acidosis, increased feed efficiency, and increased milk components, the potential benefit to cost ratio is known to be 4:1. Live yeast provides an economically reasonable solution to the digestion and production problems that can arise from feeding a high concentrate diet.

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