



## Dairy Pipeline

Department of Dairy Science

Volume 43, No. 1  
January/February 2022

[www.vtdairy.dasc.vt.edu](http://www.vtdairy.dasc.vt.edu)

### Some winter safety reminders

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As we age, old man winter becomes increasingly more difficult. With each passing year, the joints ache a bit more and get a bit stiffer. While this isn't a fashion column, here are a few quick pointers from an old farmer. First, if you like to wear two (or more) pairs of socks on a cold day, you will need a larger sized boot. Stuffing your overladen foot inside a now-too-tight shoe does more harm than good. Just like a well-insulated home uses dead air space to deflect the cold, your feet need the same room. Having thickly wrapped feet inside a too tight boot makes it easier for the cold to penetrate—while at the same time the impeding the normal blood flow that warms your feet naturally. The same goes for any other article of clothing. Layering is great as long as there is room for more layers!

Fashion aside, all of these extra layers can present a challenge from a safety standpoint. Extra loose-fitting layers are more easily entangled in moving machinery parts, especially PTO shafts. Also, rushing to finish when it is cold can result in some very dangerous shortcuts, increasing the probability of a catastrophic accident. My colleague, Eric Hallman, at the Cornell Agricultural Safety and Health Program has an excellent publication on line regarding PTO safety which can be found on the National Ag Safety Database (NASD.) Eric's work includes a chart on the just how far a 3-inch PTO shaft travels over time.

A 540 PTO shaft turns 540 revolutions in a minute, but what many may not realize is that same shaft at speed can devour an average-size person from their head to their toes in 8/10 of a second. Not surprisingly, a 1000 PTO shaft can cover that

distance in about a half second. In other words, there is no 'oops' factor built into a PTO shaft.

Most PTO accidents and injuries occur when a person's clothing or hair becomes entangled with a part of the spinning PTO system. Protruding components such as the locking pin, bolt, cotter pin, grease fitting, nails, universal joint, and tractor spline readily hook and grab loose or dangling clothes or hair. Boot laces, pant legs, coat or shirt cuffs and tails, drawstrings on windbreakers or hooded sweatshirts, and scarves frequently get entangled. And yes, cases have also been reported of long hair getting caught in PTOs.

Additionally, the environment may contribute to a PTO accident. Slippery conditions caused by rain, mud, snow, frost, or ice can cause an operator to lose his or her balance while mounting or dismounting a tractor or implement. Temperature extremes and noise and vibration from the machine can adversely affect operators by reducing their physical capabilities or adding to mental strain. When working in a tight space, we may have to come closer to the PTO or perform an activity differently than usual, increasing our chances of an accident.

Because the home and workplace are often the same on a farmstead, children are regularly exposed to dangerous equipment, increasing the possibility of accidents for non-operators. It goes without saying how terrible a farm accident involving a child can be. Children often imitate the behaviors they have seen others take on the farm, so set a good example! Take safety precautions and respect the equipment.

While younger operators may not fully appreciate the danger of a spinning PTO shaft, it is also true that as we age, our reaction times and physical abilities are eroded. Behaviors that we 'got away with' in the past will eventually catch up with us.

Not all accidents are human error related. Equipment can and will fail given enough time. Used equipment purchased without the proper shielding and older equipment that may have never had any shielding at all add additional risk. Old tractors that are mounted from the drawbar, can put the operator right on top of the PTO making it impossible to avoid close proximity to the dangers.

Every time I climb aboard my father's old tractor, I stop to give thanks to the engineer that said, "You know, right in front of the rear wheel would be a jimdandy place to put some steps". Bless their heart!

We often get in a hurry to get the job done. A good friend of mine shared recently that thinking about safety and acting safely is both a mindset and a practice. It makes me think of a comment from my brother who is a veterinarian.

He was helping a client deliver a calf. In the past the client had tried an unorthodox practice to deliver a calf by themselves and it worked. Thinking that this would work again, the client had tried the same maneuver with terrible results. My brother said, "That's the trouble with doing something crazy and it works. You can't separate *lucky* from *dumb*". There are no 'timeouts' in farming. Don't test your luck by doing something that you will look back on and correctly—but too late—identify as being *dumb*.

## Saving money on your calf program

*Authored by Dr. Robert James, Professor Emeritus, Virginia Tech Department of Dairy Science; [jamesre@vt.edu](mailto:jamesre@vt.edu)*

Traditionally, the calf program has been viewed as a high daily cost center. We have trimmed calf rearing costs by limiting their milk intake (4 quart/day) to encourage early intake of calf starter and rumen development. Ultimately, the goal was to wean the calf as soon as possible. Is this really a good goal when it goes against everything "normal" in early nutrition of most all mammals? Is this a wise return on the investment in the heifer replacement program?

Historically, we have raised all heifer calves with the option of selling any "surplus" heifers for a profit. Unfortunately, economic conditions have changed as rearing costs now commonly exceed the purchase price for a "springing" heifer.

There is a better way to save money on the calf program! Using sexed semen and genomic testing, breed the higher-ranking genetic females in the herd to high-ranking dairy sires and the remainder to beef semen. However, success with this management strategy requires some conditions which must be considered.

Success requires estimating how many females need to be raised to meet goals for herd size. Is expansion planned or will herd size be stable? An estimate of cow culling and the non-completion rate (the number of heifer calves born alive that never make it to their first calving) must be estimated reliably. There is a certain amount of uncertainty involved that requires excellent herd health programs to limit both of these factors to determine the necessary size of the heifer replacement herd.

The next thing to consider is stepping up the calf program from one which minimizes daily costs to one which optimizes the return from the investment and minimizes the non-completion rate. Consider each of the following.

**Maternity** - The calving environment must be clean and comfortable! Florida research demonstrates that preventing heat stress on the dry cow yields not only higher milk yield in the ensuing lactation but also a calf which is better prepared for early success. In addition, these calves from cooled dams perform better when *they* calve. Clean conditions are essential to limit the microbial exposure to the newborn calf which has a significant impact on health, particularly during the first months of life.

**Colostrum management** - We have all heard much discussion about the importance of colostrum to the calf. Let's provide more details on conditions for success.

- Clean! Colostrum should contain low levels of bacteria (<50,000 cfu/ml). Think of handling colostrum with the same diligence as the milk shipped from the farm. Collect it in clean equipment and either feed it

immediately or cool it immediately (immerse container in ice or cold water) to <38°F.

- Feed it as soon as possible. Think of it as a race between bacteria in the early environment and the immune globulins in the colostrum. If bacteria win, colostrum absorption is impaired.
- Feed mom's colostrum to her calf? This can be challenging, but Virginia Tech research has shown that in addition to the antibodies, the immune cells from mom are absorbed and stimulate early immune function in her calf.
- Feed the calf more milk. Feed at least two gallons of milk per day as soon as possible. This can be challenging with small calves and if the interval between two feedings is less than 10 hours, but let them drink what they will consume. Naturally, calves fed milk more frequently than twice a day will have less difficulty achieving this. Smaller more frequent meals provided by calves housed in autofeeder systems enable less stressful intake of more milk earlier in life. Remember that calf starter intake during this first month of life is low and has a minor impact on meeting the calf's nutrient requirements for growth.
- Weaning. We have commonly weaned calves by reducing their milk meals to once a day. Think about this! We have done this because it is easy for us, but it is a tremendous stress on these calves and especially for a calf that may only be 6 weeks old! Weaning should preferably be delayed to 8 weeks. Also consider a step-down weaning process where milk is reduced by a quart per feeding for several days followed by another quart a day for several more days. Weaning at 8 weeks (or later) is especially important during the winter!
- Does group or paired housing of calves help? Raising calves in individual pens or hutches has been strongly encouraged as a means of limiting calf to calf contact and reducing disease transmission. However,

when calf management and housing is excellent, and calves are housed in a well-ventilated facility there are significant benefits to paired or group housing calves they will 1) eat starter sooner; 2) adapt to weaning more readily, avoiding the post weaning "slump" commonly observed when we group house calves; and 3) are calmer and more readily adapt to new situations—and this behavior seems to continue through the rest of their lives.

Can we save money and "more importantly" raise a more profitable heifer calf by feeding fewer calves and feeding them better? Let's look at the following example:

**Traditional** – Assumptions - \$3.00/day for 42 days = \$126 X 100 calves = \$12,600 (4 to 6 quarts of milk or milk replacer/day).

**Alternative** – \$5.00/day for 56 days = \$280 X 60 calves = \$16,800 (8+quarts of milk or milk replacer/day). Beef dairy beef calves are sold during the first week of life.

- Sell 40 dairy beef calves @\$175/calf = \$7,000
- Net cost = \$16,800 - \$7000 = \$9,800

The differences in daily cost were attributed to more milk or milk replacer. Costs of treatment and calf morbidity are also a consideration and expected to be higher for traditionally reared calves. Feeding fewer calves will have an impact on labor expenses. One would also expect higher milk yield and possibly longer herd life from the alternative system. Is it time to consider a different way to manage your calf program?

## Upcoming Events

### Regular Women in Agriculture Meetings

Every 1<sup>st</sup> Tuesday @ 7:30 pm

### TMR Audit Workshop

Cave View Farm

January 11, 2022

### **Annie's Project Course**

Tuesday evenings from Dec. 7 – Feb. 1  
(no meetings during holiday weeks)

### **Hokie Dairy Day**

February 5, 2022

### **State Dairy Quiz Bowl**

March 19, 2022

### **Dairy Skill-a-thon**

April 1, 2022

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.



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A handwritten signature in black ink, appearing to read "Christina Petersson-Wolfe".

**Dr. Christina Petersson-Wolfe,**  
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