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JULY/AUGUST 2025

Are Sheep and Goats Just Small, Wimpy Cows?

page 8

FARM JOURNAL

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PHOTO: USDA

COVER PHOTOS: PIXABAY

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Nature Versus Nurture

Most of us have heard the expression "natural born leader" and can immediately call to mind people in our lives who exemplify that. They seem to have some innate qualities — confidence, great decision-making skills, problem solving abilities, to name a few — that make them so effective at leading and inspiring others.

But what if you don't consider yourself a natural leader, and you want or need to be one to succeed in your organization or to run your business effectively?

Here's the good news: most essential leadership skills can be learned and developed over time through formal learning, practical experience and an abundance of hard work.

An article in ScienceDaily estimates around 70% of leadership ability can be developed through learning, experience and training, while 30% of it is influenced by innate qualities.

- **Learned components (70%) –** These include skills acquired through experience, mentorship, formal leadership development programs and self-directed learning.
- **Innate components (30%) –** Sure, some individuals might be naturally inclined toward having certain leadership qualities, such as charisma or a proactive personality. However, these natural tendencies alone don't guarantee effective leadership.

NOT EITHER/OR

It's encouraging to me, and I hope it is to you, that most essential leadership skills can be learned, developed and applied. They aren't just a matter of nature versus nurture. They're most usually a combination of both.

Looking ahead, there are two upcoming opportunities to develop and hone your leadership skills:

- **American Association of Bovine Practitioners annual conference, Sept. 11-15, Omaha, Neb.**
- **American Veterinary Medical Association annual Veterinary Leadership Conference, Jan. 8-10, 2026, Chicago, Ill.**

You can check out the agendas for each event at the QR codes provided.

Here's one final thought on leadership. If you're far along in your career and the topic of leadership makes you shrug your shoulders in a been-there, done-that way, consider becoming a mentor to a younger practitioner. AABP has a host of mentor opportunities, and your skills, encouragement and listening ears will be just what another veterinarian needs now. **BV**

Rhonda Brooks

RHONDA BROOKS, EDITOR

SCIENCEDAILY ARTICLE

VETERINARY LEADERSHIP CONFERENCE

Read What You Might Have Missed at *BovineVetOnline.com*. Scan the QR Codes Below.

PIG FAT CELL PRODUCTION HAS POTENTIAL TO TRANSFORM LAB-GROWN MEAT

This is a significant step forward for the global lab-grown meat market, which is estimated to grow between $5 and $30 billion by 2030.

FINE-TUNING FIRST-LACTATION PERFORMANCE WITH SMARTER DATA MANAGEMENT

Actionable data can help producers ensure heifers can get off to their best start possible.

CARGILL ANNOUNCES $90-MILLION INVESTMENT IN AUTOMATION AND TECHNOLOGY

At a time when beef packing plants are in the red, Cargill stays committed to the beef industry, investing in plant technology and efficiency.

VETERINARY MEDICINE LEADER APPOINTED DEAN OF TEXAS A&M COLLEGE OF VETERINARY MEDICINE AND BIOMEDICAL SCIENCES

Bonnie R. Rush will join Texas A&M from Kansas State University.

A BIG STEP TOWARD BETTER MILK OPTIONS FOR KIDS

The Senate Agriculture Committee has advanced the bipartisan Whole Milk for Healthy Kids Act, a major step toward restoring whole and 2% milk options in schools.

JIM DRACKLEY ELECTED VICE PRESIDENT FOR THE AMERICAN DAIRY SCIENCE ASSOCIATION

The renowned dairy nutritionist and long-time University of Illinois professor has worked with dairy and feed industry groups around the globe.

OSU RECEIVES $250M INVESTMENT TO BUILD WORLD-CLASS VETERINARY TEACHING HOSPITAL

Oklahoma State University professors say this will be program-changing, as the current facility has become outdated.

Rollins' Plan for New World

USDA is launching a 5-point process to help contain the devastating pest

BY ANGIE STUMP DENTON

Secretary of Agriculture Brooke Rollins recently announced a five-pronged plan to combat New World screwworm (NWS) at the Moore Air Base facility located near Edinburg, Texas.

Moore was a sterile fly production lab in the 1960s and 1970s. A USDA spokesperson says it will cost an estimated $8.5 million to get the base up and running as a distribution facility.

But as the Texas Wildlife Association reports there are more than 1,800 livestock infestation cases in southern Mexico, flies are continuing north toward the south Texas border.

"We have defeated the screwworm before, and we will do it again," Rollins says.

Her five-pronged plan to combat NWS includes:

1. STOP THE PEST FROM SPREADING IN MEXICO.

Rollins plans to continue partnering with her Mexican counterparts and using sterile insect technology to stop the spread. This includes investing $21 million to produce up to 100 million additional sterile flies weekly.

"We are first enhancing the international sterile fly production and investing $21 million in renovation of an existing fly facility in southern Mexico, which will provide up to 100 million additional sterile flies every week to stop the spread," she says.

Currently, the only sterile fly facility is in Panama and run by both the Panamanian and U.S. governments. USDA had previously announced its plan to invest in the retrofitting of a fruit fly facility in Chiapas, Mexico, to produce additional sterile flies.

According to the National Cattlemen's Beef Association, the Chiapas facility produces about 117 million flies per week, but an effective barrier along the border would take upward of 300 million sterile flies per week.

2. PROTECT THE U.S.

Rollins temporarily closed the southern border to live animal imports, and USDA is working with Mexico on enhanced surveillance.

"I do believe we have met and moved into a new era of productive partnership — perhaps better than ever before — with our Mexican counterparts," Rollins says.

3. MAXIMIZE READINESS.

This involves partnering with state animal health officials to update emergency management plans and stockpile therapeutics for ranchers.

An $8.5-million sterile New World screwworm fly dispersal facility in South Texas will enhance USDA's already robust ability to control this pest.

Screwworm

Sterile male screwworm fly marked with a numbered tag to study fly dispersal, behavior and longevity.

Freedom From NWS Provides Economic Benefits to U.S. Producers That Are Estimated at:

$1 BILLION Annually

4. FOCUS ON TODAY.

The domestic fight includes establishing a sterile fly dispersal facility at Moore Air Base. Rollins says they are exploring options for building a domestic production facility at Moore that could produce up to 300 million sterile flies per week.

"We can't get a brand new facility up and running probably before two or three years. So, that's why we've got to really focus on the today," Rollins explains.

She also says that USDA will be hosting listening sessions in affected areas soon.

5. USE INNOVATION.

This means leveraging the sound science including USDA's Agriculture Research Service (ARS) to continue to quickly develop novel treatments, preventatives and response strategies. Rollins says this includes working with land grant universities in Texas, Arizona and New Mexico.

She lists these key strategies:

- **Develop better fly traps and lures**
- **Provide local training**
- **Improve surveillance methods**
- **Create new response strategies**

Nearly 80 lawmakers led by House Ag Committee Chair Glenn "GT" Thompson, R-Pa., sent a bipartisan letter to Rollins urging immediate action and promising congressional support for the significant funding that will be required.

The letter included this message: "When looking solely at the historical impact of NWS in Texas, USDA's Animal and Plant Health Inspection Service (APHIS) estimates a contemporary outbreak would cost producers $732 million per year and the Texas economy a loss of $1.8 billion. Extrapolating those results to the states within the historic range of NWS pre-eradication, a contemporary outbreak of NWS could cost producers $4.3 billion per year and cause a total economic loss of more than $10.6 billion. This does not account for the possible expansion of NWS beyond the historic range."

U.S. Congresswoman Monica De La Cruz, R-Texas, was at the announcement and also recently shared in a letter to Rollins these key advantages of using the Moore Air Base location:

- **Border proximity:** The proximity to the border with Mexico is crucial for effective monitoring and control of potential incursions of invasive fly species. A facility in this region would allow for rapid response and containment — helping to minimize the spread of infestations coming into the U.S.
- **Existing agricultural infrastructure:** The region boasts a robust agricultural sector with established infrastructure and expertise in livestock management. This existing framework would facilitate efficient integration of the sterile fly facility and streamline operations. Moore Air Base has operations runways equipped to distribute sterile flies.
- **Strategic location:** Moore Air Base offers a central location for distribution of sterile flies to other areas in the southern U.S., if such a need arises. Additionally, this base was the site of a facility used in the 1960s to successfully combat NWS.
- **Economic impact:** The establishment of such a facility would provide valuable economic opportunities for the region by generating jobs and stimulating local economies.

U.S. Congressman Ronny Jackson, R-Texas, summarized at the announcement, "This is important to the whole country. We are going to be aggressive about this, and we are going to make sure that we don't get screwed by the screwworm." BV

PHOTOS: USDA

Are Sheep and Goats

You might be more capable of treating small ruminants than you'd expect

BY MEREDYTH JONES
DVM, MS, DACVIM

Growing up, my now-retired veterinarian dad used to tell me, "Sick sheep seldom survive." After more than 20 years of working with sheep and goats, I can say he wasn't entirely wrong, but the issue is less about the animals themselves and more about our ability to recognize illness early. Small ruminants often mask disease until it's advanced, contributing to their reputation for poor outcomes. That perception has left many veterinarians hesitant, or even intimidated, to take on these cases. But with their growing popularity, especially among small farms and backyard producers, it's increasingly important for veterinarians to feel comfortable treating these species. With just a bit of species-specific knowledge, cattle veterinarians are well-equipped to provide excellent care for sheep and goats.

NUTRITION

The foundation of small ruminant nutrition should be high-quality, long-stem forage. Supplementation with higher-protein pelleted feeds can be appropriate during periods of growth, late gestation and lactation. As for mineral intake, loose trace mineral mixes are preferred over blocks, as sheep and goats tend to consume them more reliably.

Both sheep and goats are sensitive to copper, but sheep are particularly vulnerable. It's essential to use feeds and minerals specifically labeled for each species, especially on mixed-species operations, where accidental exposure to other livestock feeds can be fatal. In small flocks, owners should weigh out mineral periodically and track the animal's intake to make sure consumption is consistent with label guidelines.

VACCINATION

The only core vaccine is the CDT vaccine — Clostridium perfringens types C and D and tetanus toxoid. Stick with a three-way product labeled for small ruminants.

Some rabies vaccines are labeled for sheep, but there are no labeled products for goats. On small farms where there's frequent human-animal interaction, veterinarians should discuss the risks and benefits of off-label rabies vaccination. It's important owners understand extra-label use implies no guarantee of safety or efficacy.

Other vaccines available include those against caseous lymphadenitis, chlamydia, sore-mouth, etc. The use of these vaccines isn't routinely recommended in the absence of a compelling herd history, and the decision to use these, specifically the caseous lymphadenitis vaccine, must be very strategic.

Just Small, Wimpy Cows?

PARASITE CONTROL

Parasite management is a constant concern in small ruminants. Haemonchus contortus, or the barber pole worm, is the most significant threat to small ruminant production worldwide. Unfortunately, long-standing recommendations like scheduled deworming and rotation of anthelmintics have led to widespread resistance.

A more sustainable approach involves targeted selective treatment. The FAMACHA system, which scores conjunctival color to assess anemia from Haemonchus, allows owners to monitor their animals and treat only those in need.

MORE INFO

Since Haemonchus is not the only internal parasite of sheep and goats, I also recommend quarterly quantitative fecal egg counts using McMaster's or MiniFLOTAC methods. This helps monitor parasite load, treatment efficacy and which species of parasites are present that might alter treatment recommendations. Dosing charts for anthelmintics in sheep and goats can be found by scanning the QR code.

DOSING CHARTS

Coccidiosis is another key issue in young animals. Vets should include a coccidiostat, such as decoquinate, in the feed. Regular monitoring should be done for diarrhea and fecal oocyst counts.

Overcrowding, especially on hobby farms, is a major driver of parasitism. Reducing stocking density and culling chronically affected animals based on FAMACHA scores can help select for parasite resilience in the herd.

PHOTOS: PIXABAY

APPROPRIATE DRUG USE

WITHDRAWAL TIMES FOR COMMONLY USED DRUGS

Unlike cattle practice, where many drugs are approved and labeled, treating small ruminants often requires navigating extra-label use under AMDUCA guidelines. Veterinarians must provide extended withdrawal times for any extra-label drug use in food animals. FARAD is an excellent resource for determining appropriate withdrawal intervals. In 2018, FARAD published a digest of the withdrawal times for commonly used drugs in sheep and goats.

Here are some points about antimicrobial use in small ruminants:

- **Ceftiofur sodium** is labeled for respiratory disease in both sheep and goats.
- **The restriction against extra-label use** of cephalosporins does not apply to small ruminants.
- **Tilmicosin is labeled for** sheep respiratory disease but is fatal to goats.
- **Enrofloxacin is prohibited for** use in small ruminants due to the ban on extra-label fluoroquinolone use in food producing animals.

Sheep and goats are not just smaller versions of cattle. They come with their own unique physiology, management needs and medical considerations. But for veterinarians already skilled in cattle work, the learning curve is manageable. With basic adjustments to your approach in nutrition, vaccination, parasite control and pharmacology, you can expand your services and confidently care for these increasingly common backyard and small-farm patients. **BV**

RESOURCES FOR SMALL RUMINANT PRACTITIONERS

American Association of Small Ruminant Practitioners	American Dairy Science Association	American Dairy Goat Association	American Sheep Industry Association	Small Ruminant & Camelid Vet-2-Vet

Dr. Meredyth Jones owns Large Animal Consulting & Education, which provides in-person and online continuing education for veterinarians, along with mentorship and case consultations. She is a faculty member in livestock production at Texas Tech University School of Veterinary Medicine and produces beef, pork and chicken with her family in central Oklahoma. She can be reached at *meredyth@largeanimalce.com*.

PARASITE MANAGEMENT

NEW SOLUTION FOR BUFORD RANCH

Efficiency and efficacy are the two things Doug Branch is looking for in a parasite control program. As manager of the Buford Ranch Osage Division in Oklahoma, Branch oversees a registered herd of Hereford cattle, a large part of the ranch's commercial cow/calf herd and a registered Quarter Horse operation. Keeping the cows and calves healthy with a solid vaccination and parasite management program is important to the ranch's success.

Branch noticed some rough hair coats showing up and it just didn't seem like cattle were responding the same way after being treated with parasite control products. "I suspected that we had some resistance but wasn't sure," Branch said. "We agreed to participate in an Oklahoma State University research project about prevalence of resistant parasites in Oklahoma cowherds."

As part of the project, university researchers pulled individual fecal samples on the ranch's spring-born bred Hereford heifers to conduct fecal egg count reduction tests (FECRT). Half the heifers were treated with Dectomax® Injectable and the other half received Ivomec® Plus. Then, 14 days later, fecal samples were pulled again. "The reduction of egg counts wasn't as high as it should have been, indicating we were seeing some resistance issues with our parasite management program," Branch said.

With that knowledge, Branch reached out to Dalton Brown, his Zoetis sales representative; his local veterinarian, Dr. Trace Lenaburg; and Rick Clovis, the local Oklahoma State University Extension agent, to discuss options.

Brown met with the ranch team and their veterinarian to tell them about Valcor® (doramectin and levamisole injection) and how its two active ingredients work together for effective parasite control.

In August 2023, Branch made the decision to use Valcor on the fall calving cows about a month before they began calving. "We needed a person on each side of the chute to split the dosage, but it was still more convenient to use one product with a single administration type," said the ranch manager. "It was also less stressful not needing to catch heads to administer an oral drench along with a topical product like we had done before under our veterinarian's direction."

The ranch also did another FECRT on the spring heifers, following the same protocol as the university research study. This time Branch treated the heifers with Valcor and saw a 99% reduction in fecal egg counts.

"The product works well, and we saw great results with our early use," Branch said. "The cost to use Valcor is 70 cents more per head than using an oral drench and a topical parasite control product, but the convenience of using one product that is effective more than outweighs the additional cost."

The results at Buford Ranch are similar to the results from research done on the product prior to and after it came to market. Valcor consistently exceeded 99% fecal egg count reduction in studies with more than 6,300 head of cattle in multiple locations across the country.[1-6]

FOR MORE INFORMATION ON VALCOR, VISIT YOUR LOCAL VETERINARIAN OR GO TO VALCORTOUGH.COM.

IMPORTANT SAFETY INFORMATION: Do not treat cattle with Valcor within 15 days of slaughter. Not for use in female dairy cattle 20 months of age or older, including dry dairy cows; not for use in beef calves less than 2 months of age, dairy calves, and veal calves. Safety has not been evaluated in breeding bulls. Use with caution in cattle treated with cholinesterase inhibitors. This product is likely to cause injection site swelling; tissue damage (including granulomas and necrosis) may occur. These reactions have resolved without treatment. See a brief summary of the prescribing information on the next page.

Dectomax Injectable has a 35-day pre-slaughter withdrawal period. Do not use in female dairy cattle 20 months of age or older. Do not use in calves to be processed for veal. Dectomax has been developed specifically for cattle and swine. Use in dogs may result in fatalities. Consult your veterinarian for assistance in the diagnosis, treatment, and control of parasitism.

[1] Data on file, Study Report No. A131R-US-21-940, Zoetis Inc.
[2] Data on file, Study Report No. A131C-US-16-504, Zoetis Inc.
[3] Data on file, Study Report No. A131C-US-17-538, Zoetis Inc.
[4] Data on file, Study Report No. A136C-US-17-554, Zoetis Inc.
[5] Data on file, Study Report No. A131R-US-20-812, Zoetis Inc.
[6] Data on file, Study Report No. 22CRGPAR-01-01, Zoetis Inc.

Calving Ease Doesn't Have to Cost Performance

How current sexing technology can work to your advantage

Mark Z. Johnson
Oklahoma State University, Extension Specialist for Livestock Evaluation
mark.johnson@okstate.edu

Watch Mark Johnson discuss the changes occurring in the cattle industry.

Sire selection for natural service or artificial insemination (AI) is critical. Over time, 90% of genetic change is the result of sire selection. Your bull (or bulls) contribute more to the genetic makeup of your herd in a calving season than a cow does in her lifetime.

Effective sire selection should be based on genetic values in the form of EPDs or expected progeny differences. Selection on EPDs is seven to nine times more effective than selection based on individual performance data within herd ratios or performance testing because all this information (plus more) is taken into consideration in calculating EPDs.

> A bull contributes more to the genetic makeup of your herd in a calving season than a cow does in her lifetime.

Selecting genetically superior sires is going to be the fastest approach to herd improvement and bottom-line profitability when you select genetic superiority that matches your management, production and marketing system.

If you are identifying bulls to breed heifers this spring and calving ease is a priority, current sexing technology can work to your advantage. Research shows that heifer calves are, on average, approximately 5 lb. lighter than bull calves at birth. The lighter birth weights will equate to less likelihood of dystocia.

If sexed heifer semen is your preferred path to calving ease, expect to pay a little more (approximately $20 per straw) per unit than typical of conventional semen. Timing of AI should also be delayed by six hours to 12 hours if using sexed semen.

HERE'S THE PROOF

Charting the genetic trend of beef breeds indicates purebred cattle breeders have been very successful over the past 30 years of applying selection pressure to maintain calving ease while improving the additive genetic merit for weaning and yearling weight performance. What we commonly refer to as "curve benders" are easier to find than ever, especially when sorting through bull stud offerings of potential AI sires.

Yes, it's possible to get calving ease without sacrificing performance. With ample calving ease sires available, you should still be able to identify ones that give you the growth, carcass merit or levels of maternal performance you seek to improve your operation's bottom line. **BV**

PHOTO: CHERAMIE VIATOR

Cow Herd Scorecard

Strategies for evaluating herd performance following calving

BY ANGIE STUMP DENTON

Tracking performance and evaluating herd success is a year-round process and is important when considering management, nutrition and culling decisions.

For spring-calving herds, now is the time to evaluate and review calving success and failures.

A HERD'S POSTCALVING SCORECARD SHOULD INCLUDE:

- pregnancy percentages
- death loss
- calving ease/calving complications
- udder scores
- body condition score
- mothering ability and disposition
- calving interval

A top priority for Bob Larson, K-State veterinarian, is to have calves born early in the season.

"The goal is to have 65% of the calves born in the first 21 days, and 85% to 90% of the calves born within the first 42 days of the season," Larson says. "If that happens, I know the cows were in good body condition at the start of the breeding season and the bulls were fertile."

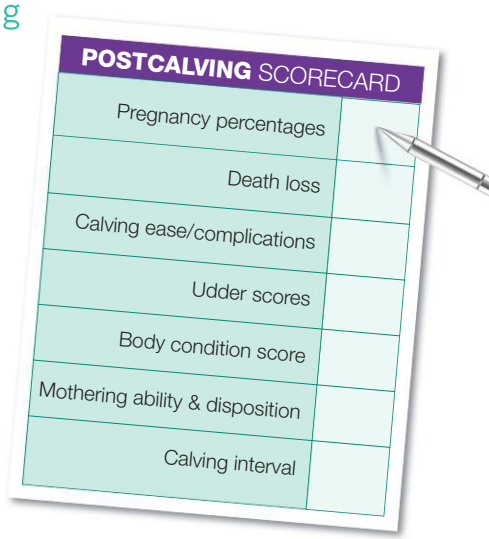
Larson references USDA's National Animal Health Monitoring Service (NAHMS) for national averages on abortion and calf death loss.

"The national average is between 1% to 2% for calf death loss and that will vary from year to year within the same operation," Larson says.

SCORECARD PREP

Ron Lemenager, Purdue professor and beef Extension specialist, suggests recording and monitoring these numbers each calving season:

- Number of cows exposed
- Number of cows pregnant
- Number of cows pregnant / Number of cows exposed = % Pregnant
- Number of pregnant cows that were kept to calve
- Number of cows that calved
- Number of cows that calved / Number of pregnant cows that were kept to calve = % Calving
- Number of Live Calves
- Number of Live Calves / Number of cows that calved = % of live calves born
- Number of live calves following one month
- Number of cows that experienced difficult or assisted births (dystocia, prolapse)
- Number of cows with bad udders
- Number of cows BCS 5 or 6
- Number of cows that have displayed poor disposition and poor mothering ability
- Number of cows that calved within the first 21 days
- Number of cows that calved within the second 21 days
- Number of cows that calved within the third 21 days
- Number of cows that calved following 63 days



Lemenager says using a spreadsheet to calculate the percentages can show specific problem areas in calving and breeding and help troubleshoot a herd's performance.

"Tracking herd performance allows producers to zero in on their problems and determine what issues are really facing the herd," he says.

Knowing the challenges facing a herd can help determine what nutrition or management strategies can improve a herd's postcalving scorecard in the future. BV

Can Phenotyping Boost Commercial Profitability?

Angus Genetics white paper looks at the future expansion of data collection

BY ANGIE STUMP DENTON

Traditional genetic improvement programs have been built on collecting phenotypic data including an animal's birth, weaning, yearling and carcass weights.

"Those phenotypes have driven the industry's increase in productivity — productivity on the rail and in the feedyard," says Troy Rowan, University of Tennessee assistant professor of beef cattle genomics. "Commercial data is going to be more and more important. The seedstock producer has traditionally been our main collector of phenotypic records. We understand we need to measure things like disease resistance and fertility in the environments that matter to the commercial producers. So, we've got to integrate those commercial records. And there's new technologies coming online that are going to help us get there easier and in a more consistent and accurate way."

Rowan recently authored a white paper that examines industry research and results from the Imagine: AGI's Beef Genetics Forum held earlier this year. He explains the big questions the Angus Association wanted to ask their producers and other folks from across the beef industry were:

> *"Commercial data is going to become more and more important."*
> — Troy Rowan

- **What are we missing?**
- **What are the technologies and approaches that are going to allow us to work toward increasing profitability?**

TECHNOLOGY'S ROLE

One of the major themes of the paper is the numerous technological developments poised to affect phenotype collection. Examples include computer-vision technology and wearable sensors.

"By using these technologies to measure traits on continuous scales rather than the categorical scales we currently use for traits like hair shedding or foot angle, we can increase precision of phenotype measurements and consequently improve the quality of EPDs (expected progeny differences) over time," Rowan says.

He also discusses the types of data most important and economically viable for the industry to pursue. For example, advancing terminal and maternal traits, health and other challenging areas of production is going to require data integration and more advanced tools.

"We should work on developing genetic selection tools that capture all elements of commercial profitability, continuing to improve yield and the eating experience of our end product while also making our cow herd more efficient, adapted and productive," Rowan summarizes.

IMPORTANCE OF DATA

In the paper, Rowan says the greatest opportunities moving forward rely on capturing and leveraging commercial data throughout the value chain.

"This will require radical collaboration and coordination between industry partners," Rowan writes. "While individual data points from a commercial herd or a processing plant may not be individually valuable, capturing multiple sources of data in the aggregate will enable genetic evaluations to fill important gaps in their systems with high-quality tools." **BV**

To hear more discussion about the white paper, you can listen to "The Angus Conversation" podcast: Genetic Innovation Requires Leadership and Data — The Phenotype Paradox in the Beef Industry.

PHOTO: ANGIE STUMP DENTON

5 THINGS TO CONSIDER

Troy Rowan says those who are leveraging new technologies and data sources will need to understand:

1. **Phenotypes are, and will always be, the backbones of genetic evaluation.** While much of our forward-looking focus is on new and novel phenotypes measured by increasingly complex technologies, we still have far from complete reporting for our core economically relevant traits (ERTs). No amount of genomic testing can make up for a lack of phenotypic reporting. In the immediate term, the continued adoption of whole-herd reporting will improve genetic predictions and open opportunities to extract new phenotypes.

2. **Standardization of phenotype collection, both by producers and via algorithms, will be essential.** "From the inception of genetic evaluations, we have worked to standardize trait definitions and best practices for recording," Rowan writes. "This motivated the creation of the Beef Improvement Federation, which continues to publish best practices. Next-generation phenotyping technologies will have many more variables that have the ability to impact raw phenotypes, making the standardization of recording, processing and cleaning even more important."

3. **Seedstock producers might not be able to shoulder the full financial burden of phenotypic collection.** Rowan says seedstock producers have traditionally borne the cost of phenotyping, but as we measure more expensive phenotypes, the economics of phenotyping will become more difficult.

4. **Genetic evaluations must balance the deluge of new technology with the resulting payoff in EPD quality and utility.** "Not every phenotype is worth measuring," Rowan says. "As new technologies come online, genetic evaluations will need to consider the costs and return on investment carefully."

5. **Data sharing will be essential to leveraging the impact of phenotypic collection across industry segments.** Economically important phenotypes can be collected at every step of the beef supply chain. From cow-calf operations to feedlots to processors to consumer feedback, data is constantly being collected. When we can tie this data back to an individual animal and its genetics, the possibilities of improving efficiency, animal well-being and consumer experience are limitless.

7 Tips To Help Mitigate BRD

Prevention starts with conditions and vaccinations

BY MAGGIE MALSON

The threat of disease-causing bacteria, Mycoplasma bovis, has risen with the increase of commingling in confinement cow-calf operations, according to Vickie Cooper, DVM, Zoetis beef technical services.

M. bovis causes bovine respiratory disease (BRD) and leads to irreversible lung damage, mortality and higher production costs. The bacteria are present in the respiratory system of perfectly normal calves but become a bigger problem when calves face stressors.

Cooper says the nature of M. bovis makes it harder to detect and treat than other BRD-causing pathogens.

"Mycoplasma bovis operates a bit like a chameleon," Cooper says. "The organism lacks a cell wall, and has variable surface proteins, so mycoplasmas can assume many forms and are very good at evading the calf's immune system."

The lack of a cell wall also makes treatment more difficult.

"Symptoms must be caught very early for treatment to be effective," Cooper says.

MANAGEMENT PRACTICES FOR BRD MITIGATION INCLUDE:

- Minimize commingling where possible and segregate groups based on age, sex and arrival date.
- Ensure good ventilation.
- Properly sanitize facilities.
- Provide adequate nutrition with fresh feed and clean water.
- Practice low-stress handling.
- Avoid dusty environments.
- Give animals enough space.

"We need to focus on doing all of the small things well," Cooper says.

She adds preventing M. bovis infection means looking at the environment and vaccination program.

"Depending on management practices and disease prevalence, Protivity may be a great fit," Cooper says. "But a solid vaccination program only works if other preventive practices are also in place." BV

PHOTO: WYATT BECHTEL

GIVE A LUT THAT GIVES THEM MORE.

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[1] Veronese A, Marques O, Moriera R, Belli AL, Bilby TR, Chebel RC. Estrous characteristics and reproductive outcomes of Holstein heifers treated with 2 prostaglandin formulations and detected in estrus by an automated estrous detection or mounting device. *J Dairy Sci* 2019:102(7):6649-6659.
[2] Umaña Sedó SG, Figueiredo CC, Gonzalez TD, Duarte GA, Ugarte Marin MB, Crawford CA, Pohler KG, Chebel RC, Bilby TR, Bisinotto RS. Evaluation of luteolysis, follicle size, and time to ovulation in Holstein heifers treated with two different analogs and doses of prostaglandin-F2∝. *J Dairy Sci* 2022 Jun;105(6):5506-5518.

Meat Allergy Mystery

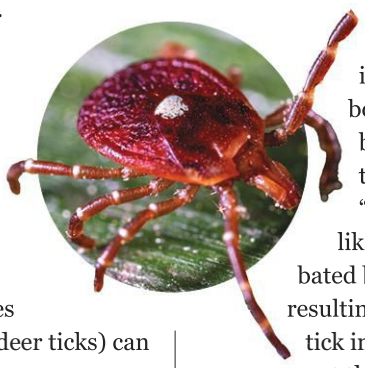
A new study is helping researchers understand Alpha-gal syndrome

BY JENNIFER SHIKE

A University of North Carolina (UNC) at Chapel Hill study is helping close in on Alpha-gal syndrome (AGS), a tick-borne allergy to animal meat.

WHAT IS AGS?

Alpha-gal is a sugar molecule found in most mammals. Bites from the lone star tick (Amblyomma americanum) or the blacklegged tick (Ixodes scapularis, also called deer ticks) can trigger AGS. After eating mammalian meat, people who are allergic to alpha-gal could have an hours-long delay in symptoms, which include hives, swelling of lips, face, tongue or throat, stomach pain and nausea, UNC reports. It can also cause restricted breathing and death.



An assistant professor in the infectious diseases division at the UNC School of Medicine, Ross Boyce is working to determine where and how to battle ticks and other insects using a dataset of 462 AGS patients and models based on environmental factors, such as landcover and topography.

"Reports of AGS have grown rapidly since its first report in 2009 and are likely to continue to increase as awareness of AGS and incidence of tick-borne disease more broadly increases," the authors explain. "These increases are likely to be exacerbated by shifts in land use, resulting in more human-tick interactions throughout the southeastern U.S."

RISK FACTORS

The models identified low population density and open-space development as risk factors for AGS. Two models predicted a strong east-to-west risk gradient across the mid-Atlantic region, which largely reflects the environmental transition from mountains to coastal plains, while a third model predicted a much more uneven distribution.

"Understanding environmental risk factors associated with AGS diagnosis is a critical first step for determining at-risk populations, and here we show evidence supporting the hypothesis that AGS is associated with landcovers often correlated with the presence of Am. americanum," the authors say.

Although the distribution of alpha-gal cases throughout the U.S. do not align exactly with the known distribution of lone star ticks, researchers say this suggests potential environmental confounders and/or ascertainment bias. Estimating incidence and geographic case distribution is also complicated by limited reporting as AGS is not generally reportable at the federal level and low healthcare provider awareness of the condition.

"AGS incidence, like all tick-borne disease (TBD), is largely driven by human behaviors that increase tick interactions, e.g., land use change, as opposed to tick population dynamics," the authors write. "Anthropogenic land use change, such as forest fragmentation and urbanization, have been linked to increased TBD risk." **BV**

PHOTOS: ISTOCK

Invasive Tick Heads West

The Asian longhorned tick has spread to more than 20 U.S. states

BY ANGIE STUMP DENTON

The Asian longhorned tick (ALHT) poses a serious threat to cattle health. ALHTs carry Theileria — a protozoan parasite that infects red and white blood cells.

ALHTs, sometimes called a bush tick, cattle tick or scrub tick, are native to eastern Asia, eastern China, Japan, the Russian Far East and Korea but were introduced to Australia, New Zealand and western Pacific Islands. In the U.S., tests show the first AHLT appeared in West Virginia in 2010. It has now spread to more than 20 states with recent confirmations in Illinois, Michigan and Iowa.

A female ALHT can reproduce without a mate and lay up to 2,000 eggs at a time. A severe infestation can kill the animal from blood loss.

IDENTIFICATION

Unfed ALHTs range from a light reddish-tan to a dark red with brown, dark markings. While the adult female grows to the size of a pea when full, other stages of the tick are very small — about the size of a sesame seed. Adult females are a gray-green with yellowish markings. Male ticks are rare.

ALHTs need warm-blooded hosts to feed and survive. They have been found on various species of domestic animals — such as sheep, goats, dogs, cats, horses, cattle and chickens — and wildlife. The tick has also been found on people.

HEALTH RISKS

ALHTs are not known to carry Lyme disease, but can cause:

- **Rocky Mountain spotted fever**
- **Heartland virus**
- **Powassan virus**

ALHT populations can also transmit cattle theileriosis in the laboratory. In an Iowa State University release, Grant Dewell, Extension beef veterinarian and associate professor, says cattle affected by theileriosis will often show signs of lethargy, anemia and also have difficulty breathing.

"Younger animals and calves can often display more severe signs compared to mature cows and bulls," Dewell says.

HOW TO TACKLE TICKS

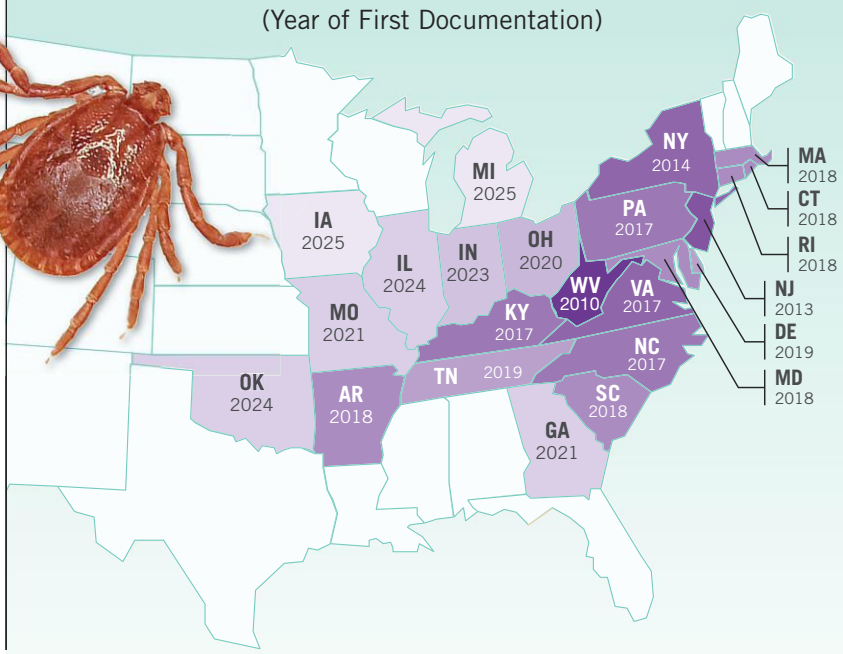
USDA Animal and Plant Heath Inspection Service lists these strategies to mitigate tick populations:

- **Regularly apply tick treatments**
- **Inspect livestock regularly**
- **Remove ticks from people and pets as quickly and safely as possible**
- **Make habitat modifications such as mowing grass, removing trees and reducing shade.**
- **Apply acaricide to tick habitats between March and November.**

"Insecticide ear tags alone are not enough. Consider incorporating a back rubber or apply a pour-on during the summer. Pyrethroid-based products can also include a tick control label." **BV**

DISTRIBUTION OF THE ASIAN LONGHORNED TICK

(Year of First Documentation)



MAP DATA: OKLAHOMA STATE UNIVERSITY; TICK PHOTO: J.A. CAMMACK

SUCCESSFUL BRD VACCINATION IS FUELED BY THE RIGHT ADJUVANT

When selecting a respiratory vaccine for calves, evaluating antigen coverage is just one part of the equation. The adjuvant—though often overlooked—is equally essential. It's the adjuvant that can determine whether a calf develops a robust, lasting immune response or remains vulnerable to disease pressure.

A SMARTER START TO IMMUNITY

"An ideal adjuvant would really have three different functions: to stimulate the immune system, help traffic antigens within the immune system and protect antigens against preexisting immunity," said Chris Chase, DVM, Professor, Department of Veterinary and Biomedical Sciences, South Dakota State University.

Biologically, adjuvants work by attracting immune cells to the injection site and improving antigen uptake. They enhance how antigens are processed and presented to the immune system, and can slow antigen release to prolong exposure — boosting both immune activation and memory.

This boost can be especially important in young calves, where maternal antibodies can interfere with vaccine performance. "When you give a modified-live vaccine, the antigen has to replicate, but preexisting immunity can neutralize the antigen before that replication happens," explained Dr. Chase. "That's where the adjuvant makes a huge difference."

FINDING THE RIGHT ADJUVANT

In the past, we believed maternal antibodies got in the way of parenteral vaccination in calves, especially with modified-live virus (MLV) vaccines. But over the last few decades, peer-reviewed studies and field work have shown that PYRAMID® vaccines can succeed even in the face of maternal immunity, all thanks to its unique adjuvant, METASTIM®.

The METASTIM adjuvant is specifically designed to address the challenges of early calfhood vaccination. Found only in PYRAMID and PRESPONSE® SQ vaccines, its dual-phase adjuvant system can stimulate a balanced, robust immune response. Research performed using PYRAMID shows that this can be achieved in calves as young as 30 days of age.[1] "Historically, it was accepted as fact that maternal antibodies would block the parenteral vaccine," said Curt Vlietstra, DVM, Boehringer Ingelheim. "Now we know METASTIM works alongside the preexisting antibodies, not against them."

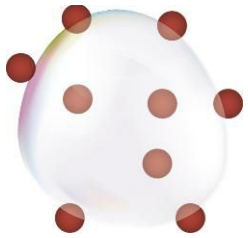
Composed of lipid droplets in an aqueous solution and surfactant, METASTIM offers a strategic advantage. In this structure, the antigen is suspended within two aqueous phases separated by an oil phase. This slows antigen release, increases lymphatic uptake and promotes antigen presentation over time. The oil-based middle layer acts as a depot, while the surrounding aqueous layers allow for early immune activation.

This dual-phase design helps the immune system respond more effectively by doing two things: It gives immune cells more time to recognize the antigen, which strengthens immune memory, and it protects the vaccine components from being quickly neutralized by circulating antibodies.

"Having a dual-phase adjuvant like METASTIM gives the vaccine multiple opportunities to present itself to the immune system," shared Dr. Vlietstra. "Even in a calf with crazy high maternal antibody levels, PYRAMID has worked."

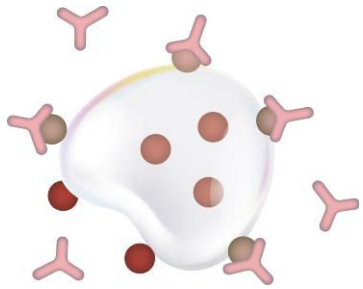
THE STRATEGIC ANTIGEN DELIVERY OF METASTIM®

1.



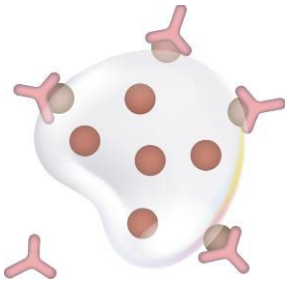
Vaccine antigens on adjuvant lipid droplets stimulate the immune system.

2.



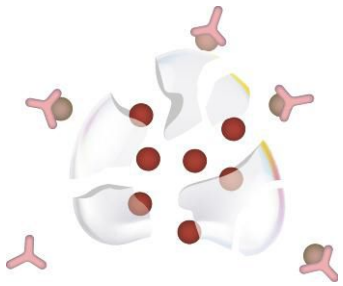
Maternal antibodies can neutralize exposed antigens.

3.



Some antigens are "hidden" inside lipid droplets to escape maternal antibodies.

4.



Immune cells metabolize lipid droplets, releasing "hidden" antigens to stimulate an immune response.

To learn more about METASTIM and PYRAMID® vaccines, contact your Boehringer Ingelheim representative or visit PYRAMIDVACCINES.COM

[1] Perkins-Oines S, Dias N, Krafsur G, et al. The effect of neonatal vaccination for bovine respiratory disease in the face of a dual challenge with bovine viral diarrhea virus and *Mannheimia haemolytica*. *Vaccine* 2023;41(19):3080–3091.

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Functional Facilities Reduce

Well-designed, versatile cattle working facilities can help both cattle and producers

BY ANGIE STUMP DENTON

A well-maintained pen and chute system is key to making processing day stress free for both the cattle and the people. Kansas State University Beef Cattle Institute experts and K-State Extension veterinarian A.J. Tarpoff shared their cattle working facility recommendations during a recent "Cattle Chat" podcast.

Regular maintenance is key to keep facilities in good working order and reduce injuries.

"Start with basic preventative maintenance. Make sure the gear teeth are in order, and the movable points are well oiled," says K-State veterinarian Brian Lubbers.

Take the time to walk through the system just as the cattle will on processing day.

"Walk through alleyways to see if there is anything protruding that will cause the cattle to get injured or balk as they are pushed ahead," says K-State veterinarian Brad White.

CONSIDERING A NEW SET UP?

Tarpoff encourages producers looking to build or revamp working facilities to consider investing in what they use regularly and think about how to get multiple functions out of one system.

"A simple, well-built, straight alley with functional sorting gates for sorting, loading and processing is one of the best investments producers can make," Tarpoff says.

K-State beef cattle nutritionist Phillip Lancaster says it is important to build a facility with the labor force in mind as well.

"Keep it simple. You don't need to build an elaborate facility, but instead design a system that will work for the labor you have available," Lancaster explains.

Make sure facilities are set up in a way that works best for the size of the cattle that are being handled.

"How many cows need moved? Can the width be changed easily for cows versus calves? These are questions producers should be thinking through," says K-State veterinarian Bob Larson.

The function of the crowding area, often called a "tub," is to funnel cattle into the alleyway on the way to the squeeze chute or loadout. The crowding area must be designed and located so cattle can be easily moved into this area from a common sorting alley that is fed by holding

The right facility set up should account for the size of the cattle being handled, the producer's budget and type of operation.

PHOTO: K-STATE RESEARCH AND EXTENSION

Stress and Boost Efficiency

pens. There are two commonly used systems. Mark Johnson, Oklahoma State University beef cattle breeding specialist, in a recent news release, compared the two.

SWEEP TUB

In the circular crowding area, with totally enclosed sides and crowding gate, the only escape route visible to the animal is through the alleyway leading to the squeeze chute or load-out. To encourage cattle to exit the crowding area, the solid crowding gate is intermittently moved toward a closed position. This restricts the cattle to a successively smaller area as they move into the alleyway.

A roughened concrete floor is desirable to provide an all-weather surface and for ease in cleaning. This design of cattle working facilities uses circular crowding areas and working chutes. The circular designs take advantage of cattle's tendency to circle and crowd toward the outside of a curved passage.

The curved crowding area and working chute encourages cattle to move in a continuous flow toward the squeeze chute. Solid enclosures shield the animals' vision from distractions outside the working area while focusing their attention on moving out of the crowding tub. When a balky animal needs to be prodded, it is only a short walk from the squeeze chute to any location along the curved working alleyway.

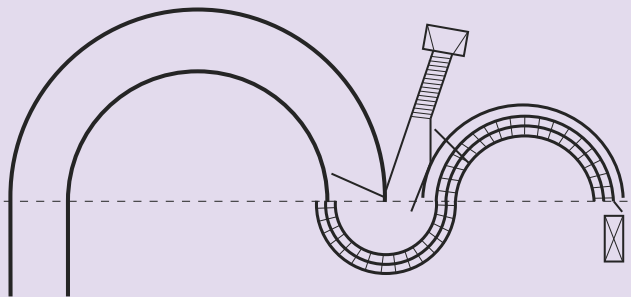
"Cattle can normally be worked in less time with a curved alleyway than a straight one," Johnson says.

The crowding alley also should be curved with totally enclosed sides.

"Cattle move more freely because they cannot view the cattlemen or squeeze chute until they approach the palpation cage or rear gate of the squeeze chute," he adds. "Sloping sides in the working alleyway confine the animal's feet to a narrow path, which reduces balking."

Sloping sides also reduce the capability of an animal to turn

TUB PROCESSING



The concept of a tub is to encourage cattle to move on their own in a safe environment.

around in the crowding alley. Sloping sides are well matched to cow-calf operations because varied sizes of cattle can be worked efficiently in the same system. The recommended width for the bottom of the alleyway is 16" with the top at 28". Emergency release panels can be constructed as movable crowding alley side panels that can be opened.

Johnson says an important consideration is the cattle handler does not need to be inside the sweep tub. The handler works from the outside of the tub and alleyway while processing the cattle.

BUD BOX

The Bud Box is a rectangular pen in which the alleyway leading to the chute is placed at a right angle at the point of entry. The design is simple — and with proper handling techniques — can be highly effective.

The same concepts regarding the alleyway leading to the squeeze chute or loadout still apply. The primary difference is the way in which cattle are coaxed into the alleyway.

Cattle are brought into the box, and the position of the handler along the opposite side of the box stimulates cattle to move by the handler and into the alleyway. The gate that is closed behind the cattle as they moved past the alley forms the box.

"The Bud Box requires a basic understanding of cattle handling principles and may require additional training for inexperienced producers," Johnson says "The effectiveness of the design and the manner in which cattle flow into the alley is the result of the cattle handling skills and the attitude of the handler. Proper use of the box requires the cattle handler to be inside the box with the cattle."

The Bud Box contrasts the large, circular, sweep systems. The absence of large, fabricated bends makes it easier to construct. The box typically has open sides and does not require crowding gates, which reduces the material cost and footprint of the facility. A typical box is 12' wide and 20' long. It is closed on one end with a gate at the other end. A Bud Box can be constructed and deconstructed from portable panels.

"The decision of incorporating a sweep tub or Bud Box into your cattle working system should be based on considering a number of factors determining what is the best fit for your budget and type of operation," Johnson summarizes. "There are numerous YouTube videos available on the web showing examples of working cattle through, and the construction of, both sweep tubs and Bud Boxes." **BV**

Naive calves effortlessly flow around the handler and up the chute because the Bud Box makes our idea the animals' idea.

PHOTOS: WHIT HIBBARD

Calves Prefer Their Pals

Even when the heat is on, a study found calves want to stay close to their partners

BY MAUREEN HANSON

The effects of heat stress on calves has been a popular research topic in recent years. So, too, has the study of social versus individual calf housing. Now, University of Wisconsin researchers have published a first-of-its kind study examining the two factors together.

The project, published in the Journal of Dairy Science, studied the behavior and physiological characteristics of pair-housed preweaned calves navigating social contact and thermal comfort.

A total of 50 Holstein heifer calves were housed in 25 pairs in adjoining hutches with a common outdoor run. In each pair of hutches, one was ventilated with two open windows at the rear base, and the rear bedding door propped open. The other hutch had no ventilation.

Calves were exposed to and evaluated under four conditions for one daytime hour each — individually or in pairs confined to a ventilated or non-ventilated hutch during later spring to fall.

The observations were conducted on two consecutive days during weeks four, six and nine of life. Immediately before and after the hutch confinement, respiration rate and rectal temperature were recorded while calves were outside.

On the subsequent third day in the test weeks, the location of each calf was recorded in 15-minute intervals using time-lapse cameras. The animals had the ability to move freely among the two hutches and outdoor run without confinement.

Even though evidence in the study indicated the ventilated hutches were more comfortable, calves were willing to forego that comfort to stay with another calf.

FINDINGS INCLUDED:

> **Calves had no hutch preference in week four of life,** but significantly preferred the ventilated hutch in weeks six and nine of life.

> **The temperature-humidity index (THI) within the ventilated hutches remained constant throughout the course of the study,** regardless of the number of calves in them. The unventilated hutches saw a rise in THI when calves were confined inside, which became more pronounced with two calves versus one, and as the calves aged, grew larger and began ruminating.

> **Not only did ventilation mitigate THI increase,** but it also produced a significant reduction in the respiration rate of calves during the time they were confined inside. The greatest reduction in respiration rate was observed in paired calves in week six. Respiration rate inside and outside the hutch remained relatively the same for the non-ventilated hutches for calves of all ages.

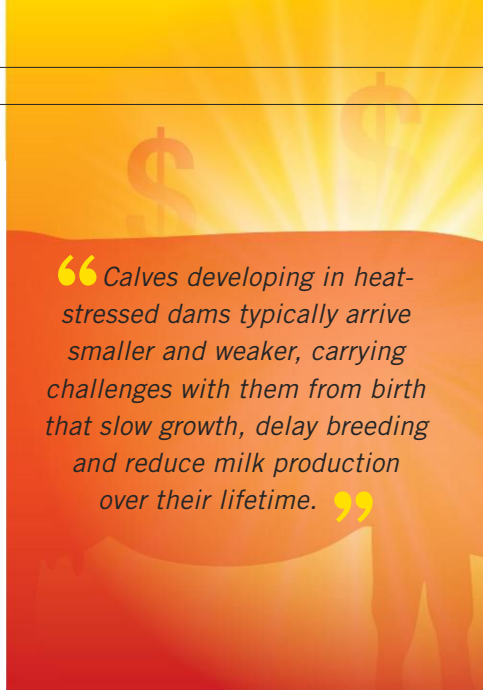
> **No significant effect on rectal temperature** was observed under any of the conditions.

> **Regardless of location,** calves in the unconfined portion of the study preferred being together about 80% of the time.

The preference for staying together was true even inside the unventilated hutches. The researchers cited previous data indicating calves have a strong desire to access and maintain physical contact with another calf.

They speculated that, when considering social contact versus physical comfort, calves were willing to endure higher temperatures and potentially poorer air quality to be with their partner. Even though evidence in the study indicated the ventilated hutches were more comfortable, calves were willing to forego that comfort to stay with another calf. **BV**

The Hidden Cost of Heat Stress on the Unborn Calf



Protecting the future performance of the herd starts with cooling the cows who are carrying it

BY TAYLOR LEACH

Dairy producers often turn their attention to lactating cows when temperatures rise, but research shows dry cows and bred heifers are just as vulnerable to heat stress — even if the signs are less visible.

Carly Becker, a former dairy Extension educator for Pennsylvania State University, and Bethany Dado-Senn, a calf and heifer technical specialist at VitaPlus, weigh in with practical insights on why cooling dry cows matters more than ever.

LIFELONG CONSEQUENCES

Studies show the heat of one summer can ripple through a herd's productivity for years.

"Calves born from dams under heat stress are basically doomed from the start," Dado-Senn says. "They're born smaller, have smaller mammary glands and are more likely to leave the herd due to either fertility or health issues. If they make it to the lactating herd, they make less milk in three lactations."

Becker explains these calves often face reduced placental function, are typically born about 8.8 lb. lighter and struggle with lower immunity due to failed colostrum transfer.

Unfortunately, the setbacks don't stop there. In-utero, heat-stressed calves have been shown to consume less feed, require more tube feedings and experience delayed growth. This also extends to future generations.

"We know that this is a transgenerational problem," Dado-Senn says. "The granddaughters of calves who experienced heat stress in utero also make less milk and have impaired mammary development."

THE CASE FOR COOLING

Dry cows and bred heifers need cooling just as much as the lactating herd, especially those in the final weeks of gestation.

"Too often, dry cows are left in less-ventilated barns or in lots with little to no cooling," Becker explains.

That oversight comes with a cost. Research shows heat-stressed dry cows produce 6.6 lb. to 16.5 lb. less milk per day in the following lactation and often face more health challenges after calving.

NUTRITION'S PART

In addition to physical cooling strategies, nutrition can offer another line of defense against the effects of in-utero heat stress. According to Dado-Senn, one nutritional tool gaining traction is the use of rumen-protected methionine during late gestation — especially when heat stress is unavoidable.

"Calves born to dams fed rumen-protected methionine often exhibit better growth, improved feed efficiency and enhanced energy metabolism," Dado-Senn says. "We also see advantages like stronger intestinal growth, more favorable DNA methylation patterns and improved resilience to stress."

Rumen-protected choline is another promising nutritional intervention with similar benefits.

"When supplemented during late gestation, choline has been shown to improve calf growth, feed efficiency, and circulating metabolites," Dado-Senn says. "In one study that included both beef and dairy calves, increased maternal choline intake, particularly in beef bull calves, was associated with higher weaning weights and better feed efficiency."

ELIMINATE THE SILENT TOLL

Though heat stress during the dry period can often go unnoticed,

6 STRATEGIES TO MITIGATE HEAT STRESS

Consider these options to reduce the weather's effect this summer

- **Install and maintain fans or tunnel ventilation** in dry pens and holding areas.
- **Use sprinklers or soakers** on timers during peak heat hours.
- **Provide ample shade,** especially for animals housed outdoors. Natural tree lines, shade cloths or roofed shelters can offer relief.
- **Ensure unrestricted access to clean, fresh water.** As temperatures rise, so does a cow's water demand — sometimes doubling intake on the hottest days.
- **Manage stocking density to reduce crowding**.
- **Feed during the cooler parts of the day,** like early morning or late evening, to encourage dry-matter intake and minimize heat-related feed refusals.

the calves developing often arrive smaller and weaker, carrying challenges that will slow growth, delay breeding and reduce milk production over their lifetime.

Cooling dry cows and bred heifers with fans, shade and fresh water are easy ways to help minimize discomfort, yet nutrition can play a powerful role as well.

As Becker emphasizes, "Investing in dry cow and bred heifer cooling isn't just about comfort. It's about protecting your future herd and setting calves up for success." **BV**

Added Powder = Added Growth

Can pasteurized whole milk be enhanced with added milk replacer powder?

BY MAUREEN HANSON

In the quest to boost the nutrition of preweaned dairy calves, one strategy is to add milk replacer powder to enhance pasteurized whole milk.

Though it might improve preweaning average daily gain (ADG), there are also concerns for suppressing starter grain intake and the possibility of causing digestive imbalances and diarrhea.

A team of researchers at the University of Illinois recently conducted a study to discern the best amount of milk replacer to use when fortifying whole milk, and the ideal time frame in which to do so. A total of 45 calves were fed a liquid ration for 59 days in three groups:

- **No supplement:** 5 liters of pasteurized whole milk with no added milk replacer powder from days three to 56, followed by a step-down to 2.5 liters per day for days 57 to 59. Total solids: 31.9 kg.
- **Short-term supplement:** 5 liters of pasteurized whole milk for days three through nine, an added supplement of milk replacer powder for days 10 to 41, removal of the supplement from days 42 to 56 and a step-down to 2.5 liters per day (with no supplement) for days 57 to 59. Total solids: 42.3 kg.
- **Long-term supplement:** 5 liters of pasteurized whole milk for days three through nine, an added supplement of milk replacer powder for days 10 to 56 and a step-down to 2.5 liters per day that included the added milk replacer powder. Total solids: 47.7 kg.

All calves were weaned on day 60, and the study concluded on day 75. The amount of milk replacer added was based on previous research indicating 18% solids was the safe upper bound without causing issues related to osmolality. Milk replacer solids were added to the pasteurized whole milk to achieve a total solids limit of 18%.

Throughout the study, calves had free-choice access to a starter total mixed ration formulated using a base of corn, barley, soybean meal and fish meal, combined with 8% chopped second-cutting alfalfa hay. The diet was formulated for calves with a birth weight of 60 kg to 70 kg to achieve a target ADG of 0.75 kg per day.

BEST APPROACH FOR GROWTH AND HEALTH

Published in the Journal of Dairy Science, the results of the experiment showed:

- **Starter feed intake was significantly higher in the preweaning period for calves that received no supplement,** but it did not vary significantly between the three groups in the postweaning period.
- **Calves on the long-term supplement showed much lower starter intake at weaning** from days 56 to 62.
- **Total dry-matter intake** in the milk-feeding period was lowest in the non-supplemented group.
- **Calves without supplement had the lowest weaning weight,** hip height and final weight.
- **The long-term supplemented calves had fewer health-related issues** throughout the study.

The researchers concluded that while supplementing with milk replacer until the end of the milk-feeding period resulted in lower starter intake around the time of weaning, overall it was the most beneficial approach in terms of calf growth and health. Removing milk replacer supplementation midway through the preweaning phase, or not using it at all, decreased the ADG of calves. BV

PHOTO: ADOBE STOCK

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- ✓ sip a cup of hot coffee
- ✓ tuck into a hot breakfast
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The Summer Surge

Proactive management and attention to detail mean the heat doesn't have to compromise milk quality

BY TAYLOR LEACH

When temperatures and humidity rise, somatic cell counts (SCC) follow suit. Heat stress can open the door for mastitis and set the stage for SCC levels to spike.

Amber Yutzy, assistant director of animal system programs at Penn State, and Emily Krekelberg, University of Minnesota Extension educator, share practical strategies to take control of the situation.

HEAT STRESS HEADACHES

Yutzy says heat simply makes cows more vulnerable.

"We often see decreased production during hot weather because cows spend more time standing or lying where it's cooler and less time eating at the bunk," she says. "Environmental mastitis also increases due to more frequent exposure of the teat end to bacteria."

Stress also causes the immune system to take a hit.

"When bacteria enters the udder, the cow's immune response sends somatic cells to fight back," Yutzy says. "But stress hormones depress those cells' function, weakening the defense against mastitis-causing organisms."

Just a few problem cows can skew your bulk tank.

"Look at individual cow reports to pinpoint problem cows and make culling decisions," Krekelberg adds.

START WITH CULTURES: IDENTIFY THE SOURCE

If your SCC is climbing, the first step is to identify the cause. That means culturing.

7 STEPS TO HELP LOWER YOUR SCC THIS SUMMER

Penn State's Amber Yutzy, along with British dairy veterinarian Peter Edmondson, a mastitis and milk quality expert and owner of UdderWise Ltd., outline seven tactical steps to improve SCC, especially during high-risk seasons like summer:

Keep Bedding Clean and Dry

Humid summer air encourages bacterial growth. Maintain clean, dry stalls to limit bacterial exposure and encourage cows to lie down in stalls rather than in manure-laden alleys.

Use Fans and Sprinklers Wisely

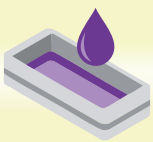
While cow cooling is crucial, mismanaged fans or sprinklers can backfire by creating wet stalls, overly damp cows or congregation zones that collect manure. Aim to cool cows without compromising cleanliness.

Control Flies Aggressively

Biting flies aren't just a nuisance. They're stress-inducing vectors for mastitis-causing bacteria. A solid fly control program can protect both herd health and productivity.

Train the Team

Reinforce milking protocols with all employees. Proper technique helps limit any potential new infections and ensures early detection of clinical mastitis cases.



Provide Plenty of Fresh, Clean Water

At temperatures of 80°F, cows drink up to 50% more than they do at 40°F. Adequate water access is critical to help them cool themselves through increased respiration and perspiration.

"Do a bulk tank culture to see if the problem is environmental, contagious or something else," Krekelberg says.

Results will guide your strategy, but it's best to test on multiple days. Sometimes, one aggressive organism overwhelms the plate and hides others.

CONTAGIOUS? CONTAIN AND CONTROL

If the culture reveals contagious culprits like Staph aureus or mycoplasma, begin aggressive containment.

"Milk contagious cows last to avoid spreading the organisms to uninfected cows," Krekelberg says.

She also advises housing infected cows separately and ensuring proper teat dip coverage.

"Predip should have a contact time of at least 30 seconds with the teat skin surface," she says. "Postdip must fully cover the teat."

Assess how your milking equipment is functioning and review your cow prep protocol with employees. Regularly inspect liners, hoses and vacuum levels.

ENVIRONMENTAL? CLEAN, DRY, REPEAT

If your issue is environmental, eliminate moisture and bacteria from the cow's surroundings.

"Add more bedding to stalls or packs and change bedding more often," Krekelberg suggests. "It could be worth it to bed twice a day if you notice cows are really getting wet and dirty."

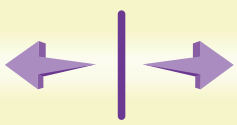
She also stresses keeping milking equipment clean and ensuring spotless teats before unit attachment.

"There should not be any dirt or manure present. Taking the time to clean teats thoroughly makes a huge difference," she says.

STAY LOW ON PURPOSE

Keeping somatic cell counts in check in the summer takes more than just good intentions. It requires sound management, consistent routines and close monitoring. Staying proactive and focused on the details helps limit seasonal setbacks and protect your farm's milk quality.

British dairy veterinarian Peter Edmondson adds, "Having a low SCC never happens by accident. It's the result of high intention, sincere effort, intelligent direction and skillful execution." **BV**



Stop the Spread

Create a separate milking group for high-SCC cows and always milk them last. Use gloves and keep them clean. Whether you use paper or cloth towels, one per cow is the rule; no sharing. Replace cloth towels after 500 to 600 uses, and wash at high temperatures.

Make a Plan and Track It

Edmondson stresses the importance of clear, measurable goals. Focus on cows contributing the most somatic cells to the bulk tank. Consider their history, production and treatment response. Don't rush to cull. Instead, evaluate with your vet. Most importantly, monitor progress monthly.

Kefir for Calves is on the Menu

Fermentation offers natural, non-medicated means of promoting digestive health

BY MAUREEN HANSON

You might see it in the grocery dairy case, and you might even drink it yourself.

Kefir is a drinkable yogurt, with a high probiotic content, protein, vitamins and minerals that benefit digestive health.

Now, calves can get on the kefir kick, too, as evidenced by research performed at the W.H. Miner Institute in Chazy, N.Y. Research scientist Sarah Morrison discussed the projects on a recent episode of "The Dairy Podcast Show."

From a practical standpoint, Morrison says kefir is a low-cost, non-antibiotic approach to supporting calf health and performance.

She explains kefir actually has ties to the realm of biofilms. And while calf raisers traditionally tend to think of biofilms as bad things, they can also be beneficial bacteria that help protect intestinal integrity and provide protection to calves against harmful bacteria.

HOW IT'S MADE

Kefir is produced by starting with kefir "grains," which are a matrix of bacteria and yeast held together by a biofilm called kefiran. These grains function as a starter culture when added to fresh milk. After the milk has fermented to the desired consistency and pH, the grains are removed and, with proper refrigeration storage, can be used indefinitely to make future batches of kefir.

"The fermented kefir contains lactic acid bacteria, yeast and fungi that are all really good for the gastrointestinal tract," Morrison explains during the podcast. "These bacteria, yeast and fungi are associated with the intestinal lining, and that's what competitively inhibits those negative bacteria that might be present."

> *The fermented kefir contains lactic acid bacteria, yeast and fungi that are all really good for the gastrointestinal tract.* —Sarah Morrison

DOES IT WORK?

Morrison and her colleagues worked with two commercial dairies and the Miner Institute herd to evaluate the effects of kefir on calves. They fed a supplement of ¼ cup of kefir per calf per day for the first 21 days of life, and compared the performance of those calves to that of non-supplemented calves.

"We didn't see any significant differences in health, but the interesting things we did see was that as they were weaned, the kefir group consumed a total of about 6 lb. of starter per head more through the preweaning period than the control group," she says. "We were surprised to see that carryover from something that had ended three weeks earlier."

In a follow-up study, they added rumen fluid sampling and intestinal permeability testing. Morrison says they saw no improvement in integrity of the GI tract, but the starter grain intake difference happened again. They are still analyzing the data from that group of calves to determine if that increased grain consumption led to higher weight gain before or after weaning.

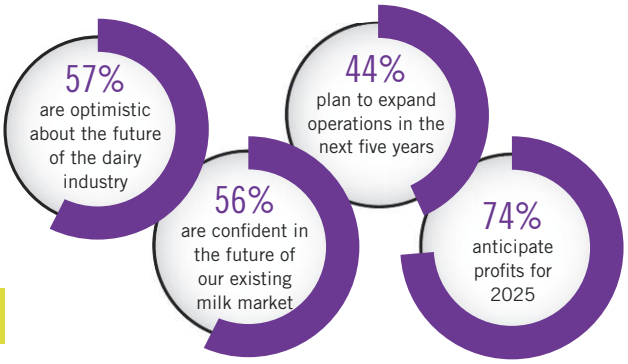
While there are many commercial supplements that promote similar, positive effects on the gastrointestinal tract, Morrison says for some farms, homegrown kefir could fit neatly into their calf management and health program.

"It depends on what you're willing to manage and what works for you and your operation," she says. "There are many ways to get to the same result." BV

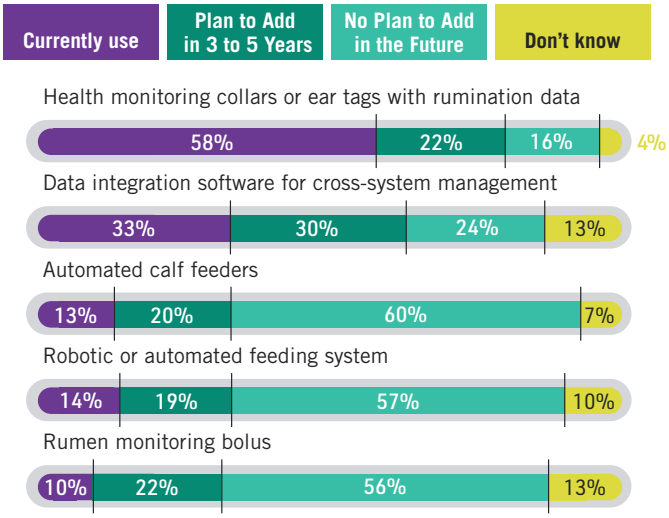
The State of U.S. Dairy

Results from Farm Journal's latest report reveal an air of optimism among producers

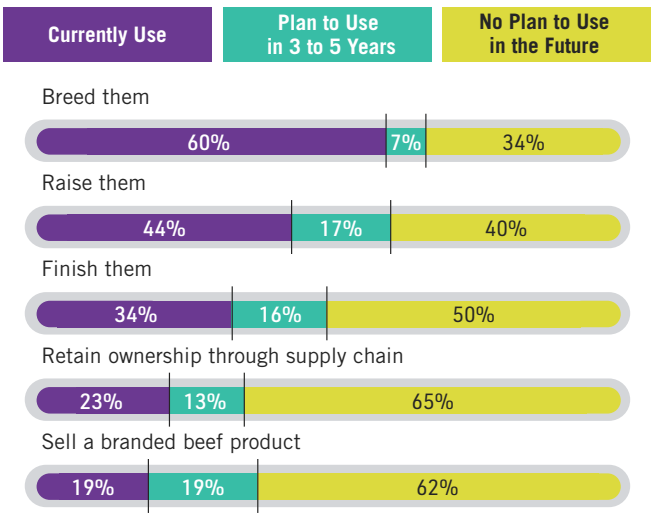
Farm Journal's State of the Dairy Industry 2025 report surveyed 400 U.S. dairy producers with more than 100 cows to understand their future plans and current challenges. Despite obstacles, the industry is embracing innovation and finding growth opportunities. *—Karen Bohnert*



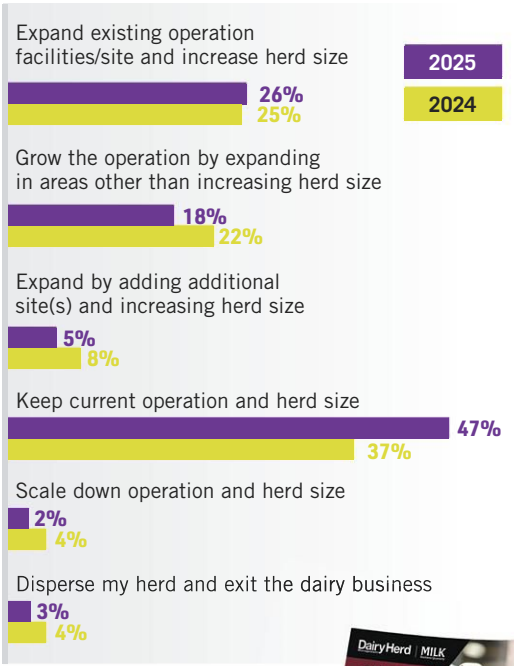
Which of the following do you use on your operation?



How are you currently using beef-on-dairy in your operation?



Which of the following best describes your growth plans for your dairy operation(s) in the next five years?



Download the State of the Dairy Industry 2025 Report today.

Reset, Refocus and Recharge at the 2025 MILK™ Business Conference

Between the insights and the atmosphere, it's a chance to close out the year with momentum and purpose

December 2-3
Paris Hotel | Las Vegas

The days are long, the heat is intense and the to-do list never seems to end. That's why now is the best time to plan your year-end breather and business reset. And there's no better way to do it than at the Paris Hotel in Las Vegas from Dec. 2-3 for the 2025 MILK Business Conference.

From market volatility and beef-on-dairy innovation to labor, technology and sustainability, this two-day event tackles the issues that matter most to modern operations. You'll hear from leading experts, gain practical take-aways and connect with producers in the industry.

—Taylor Leach

WHAT TO EXPECT

This year's agenda is packed with sessions designed to sharpen your competitive edge and provide real-world tools, innovative ideas and a renewed sense of direction.

FEATURED SPEAKERS INCLUDE:

- **Krysta Harden**, president and CEO of the U.S. Dairy Export Council: An Update from USDEC
- **Stephen Cain,** National Milk Producers Federation: Navigate Uncertainty: Dairy Industry's Path Forward
- **Greg Bethard,** High Plains Dairy: Transform Your Future: Insider Strategy Tips from Top Performing Producers

PLUS:

- **Panels on:** labor, beef-on-dairy, policy and sustainability
- **Strategy insights** straight from several leading producers
- Live taping of **"U.S. Farm Report"** with Tyne Morgan

DON'T MISS OUT

And yes, the fan-favorite Dairy DARTY is back. What's a Dairy DARTY? A Day Party! Join us for an afternoon of networking, games and fun. Meet other dairy producers while enjoying the beautiful Paris Hotel pool deck with food, drinks and sunshine. You work hard — you deserve to celebrate!

MILK BUSINESS AWARDS

We're also celebrating the dairies that have taken their operations from good to great. Applications are now open for the 2025 MILK Business Awards, honoring innovation, efficiency and leadership in dairy. Winners will be recognized live on stage in Las Vegas. But don't wait — the last day to submit nominations is Aug. 1.

Don't wait — early bird rates won't last. Register today and learn more at MilkBusiness.com!

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We want your input! Take a short survey by August 7, 2025, for the chance to win a $25 gift card to popular retailers like Amazon®, Target®, Walmart®, and more!

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FARM JOURNAL

3 Factors Fueling Americans' Obsession with Protein

Whether it's pork, beef or chicken, consumers can't seem to eat enough protein

BY TYNE MORGAN

Meat is having a moment, and the fact cattle prices continue to crush records while demand for pork is robust serves as proof.

"I am still bullish of dairy. I'm bullish of beef. I'm bullish of pork and poultry," says Dan Basse, AgResource Company. "I see the next two or three years as the years of protein. It's that side of the fence in agriculture that's going to do very well."

Basse's optimistic outlook on protein hinges on one major factor: consumers' ability to pay for it.

"I'm still bullish of protein, until we see the labor force start to shrink in the United States, and I start to see disposable income coming down," he says. "There's not a period in history I can find where disposable income on a personal basis has risen this quickly from 2020 to 2025."

"Meat protein, not just pork or not just beef, is having a moment," says Glynn Tonsor, an agricultural economics professor at Kansas State University. "I'm an economist, so I have concerns on the macroeconomic front, but it is exciting to be in an era where the public's desire for meat protein is growing."

PROTEIN IN THE SPOTLIGHT

Cargill's 2025 Protein Profile found 61% of consumers report increasing their protein intake in 2024, up from 48% from 2019.

According to Cargill, the shift in shoppers' preferences toward whole, minimally processed foods, is giving protein a chance to shine.

"It's really important to remember the U.S. public wants meat protein," Tonsor says. "There are a lot of signs. We are in a pro-protein environment. I don't think there's issues. I actually think there is a celebration about the taste and the eating experience and so forth for all the major proteins."

SLIGHT SHIFT IN DEMAND

Tonsor also authors what's called the Monthly Meat Demand Monitor (MDM), which tracks U.S. consumer preferences, views and demand for meat. The first half of the year, the MDM continued to show consumers' growing demand for protein, but it recently showed a slight shift.

"The biggest takeaway from the MDM would be we have two conflicting patterns," Tonsor says. "One is the public really wants meat protein, but the macroeconomic environment is giving us some pause. Trade discussions, elevated unemployment, inflation concerns and so forth, are not supportive of meat demand. Those two trends are fighting the way out."

Tonsor says the report showed a pullback in consumers eating away from home in places like restaurants but showed a boost in retail demand, which would be grocery stores.

"Part of that is a substitution away from restaurants," Tonsor says. "And that's across the board. It's not just pork, beef or chicken. It's all of them that we track. So, I do think it is a headwind that is growing here in 2025."

Tonsor explains if confidence in the economy rebounds, and tariff discussions ease, the restaurant piece of meat demand would be able to quickly recover — especially considering the fact that meat demand has historically been higher during the summer months.

3 MAJOR DRIVERS BEHIND THE PROTEIN CRAZE

And even with the recent pause in restaurant demand, Tonsor says the push for consumers to eat even more protein doesn't seem to be going

PHOTO: WYATT BECHTEL

Though record-high beef prices might have caused consumers to switch to pork or chicken in the past, experts say that's not the case this time.

away anytime soon, and it's being driven by three major factors.

"More people are having meat as an ingredient rather than the center of the plate. So, it's coming across as more convenient. It's an input," Tonsor says. "Also, younger folks in particular are quite physically active, and their demand for protein and that broader lifestyle is elevated."

Those two factors are strong drivers of meat demand, especially for younger Americans. But another supportive piece of the growing demand for protein is related to weight loss drugs.

"We have a GLP-1 effect, so Ozempic, Mounjaro and so forth, in the MDM. We put out a report earlier this year showing maybe 15% of the U.S. public is using the GLP-1," Tonsor says. "That's a higher end, but that's what we estimate. And if you are on those products, you're actually consuming beef, pork and chicken more frequently."

He says these three factors put together add up to support the growth in meat demand.

"It's the income and the future status of finances that are mainly the only headwind at the moment, and that's why I keep reiterating that concern," Tonsor says.

DEMAND IS WHAT'S PUSHING CATTLE PRICES TO NEW HIGHS

It's not just the hog industry that's benefiting from the strong demand for protein, both domestically and through exports.

Cattle prices also continue to crush records. But according to one cattle analyst, it's not historically tight cattle numbers pushing prices higher, it's strong demand.

"This price increase we're experiencing in the industry is demand-driven," says Randy Blach, CEO of CattleFax. "Our per capita supplies were flat last year. They're going to be flat again this year. And yet, we've had a market that's gone from a $1.75 to $2.25. That's all been demand driven with what we've seen throughout the industry."

This trend is now pushing beef demand to its highest level in nearly 40 years.

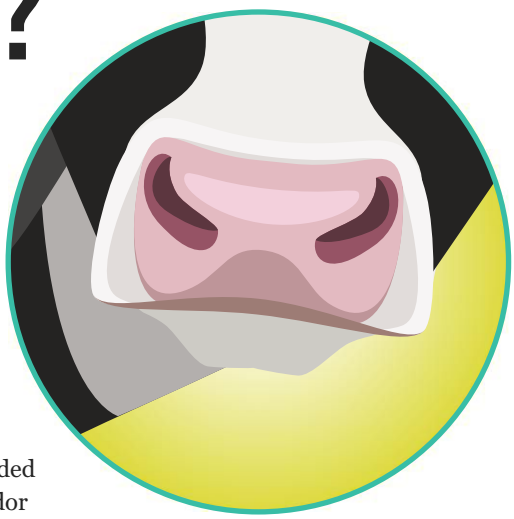
"Beef demands are at a 37-year high," he says. "And I think when people think about demand, obviously quality has been the key to that. We've seen the quality of the animals being produced has increased substantially."

As record-high cattle prices also push the cost of beef higher, that would push consumers to eat more pork and chicken in the past. But it's a trend Tonsor is not largely seeing this time around.

"We see some of that, but not nearly as much as you might think. So, there's less of that adjustment than historically we would have seen," Tonsor says. "This is 100% my opinion, but I think habits are a little stickier. Persistence of an item in your meal is a little sticker than in the past. Meat is an ingredient, not just the center of the plate. Higher beef prices have not elevated chicken demand as people have expected, and I think it's because even though the consumer substitution effects exist, they're not as strong as they were 20 years ago."

As consumers crave more protein, it's a bright spot for all of livestock with many hopeful this isn't just a trend but a permanent fixture on consumers' plates. **BV**

Who 'Nose' What Cows Can Smell?



Cattle rely heavily on their sense of smell, and understanding their odor preferences could help

BY MAUREEN HANSON

Animals use their sense of smell to find food, select mates and detect predators.

Cattle, especially, have a well-developed sense of olfaction that could play a significant role in their everyday lives. Understanding their odor-related preferences and motivations could help to guide handling and management practices. For example, appealing smells could be used to motivate or calm cows in some settings.

The cows in the study did not sniff any of the odors significantly more than others, though they did sniff cedarwood numerically more.

THE SCIENCE

A team of Swedish researchers recently published a study in the Journal of Dairy Science that added to the limited body of research-based knowledge previously available regarding the olfactory abilities of cattle.

Their study included 28 lactating dairy cows: 16 Swedish Holstein and 12 Swedish Red. The cows were evaluated in pairs and exposed multiple times to four novel fragrances: cedarwood, lavender, orange and peppermint. The odors were presented to the cows by soaking an equivalent dose of fully concentrated essential oils on clean filter paper placed inside of an "odor box."

The behaviors evaluated included sniffing, licking and biting the odor box as well as avoidance behavior and ear positions in response to repeated exposure to the odors. The researchers wanted to learn whether cows were able to distinguish four odors of natural, non-social origin; whether any of the odors evoked more interest from the cows than the others, and if age, parity or breed had any impact on the results.

THEIR FINDINGS INCLUDED:

Cows showed a numerical decrease in sniffing time over repeated presentations of the same odor. But only the first-to-third presentation of cedarwood and first-to-second and first-to-third presentation of orange had significantly different results.

- **Younger cows sniffed longer than older cows,** irrespective of odor.
- **As a whole, the cows in the study did not sniff any of the odors significantly more than others,** although they did sniff cedarwood numerically more than the others, and orange the least.
- **Breed did not influence the cow's sniffing behavior.**
- **Peppermint tended to evoke the most licking and biting.**
- **It was inconclusive whether the cows were able to detect all four odors,** and whether or not they were able to distinguish between the odors.

Testing cows in pairs was chosen to promote socialization and limit stress as the animals were evaluated. However, the researchers note the pair testing might have affected the results due to odor contamination with the partner cow's saliva and nasal fluid.

The researchers conclude further work discovering the olfactory abilities of cows will be needed, with possible modifications in the study's design. BV

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New data reveals what drives price paid by buyers

Potential to add $115 per head with a VAC45 program and implanting

Why do buyers pay more for some calves and not others? Merck Animal Health, Superior Livestock Auction and Kansas State University have partnered to evaluate the management decisions, programs, and health protocols that drive the price per pound paid by buyers. The 2024 dataset includes information from 851,181 calves with an average weight of 572 pounds.[1]

Buyers want to see calves that are primed for their future, and according to the data, they're willing to pay more for them. Calves on a VAC45 preconditioning program that received two doses of a clostridial vaccine, two doses of a five-way modified live viral vaccine, and at least one dose of Mannheimia haemolytica and/or Pasteurella multocida vaccine, and weaned at home for 45 days before delivery, added $8.46/cwt compared to those receiving only one dose of each of the three vaccines and weaned at shipping.[2] Calves sold on a VAC45 program added $48.39 per head.

The implant advantage

Over the last five years, in nearly 5 million head of cattle evaluated, there has not been a difference in price per pound paid between implanted and non-implanted calves. Calves implanted at 2 months of age and older on average weigh 23 pounds heavier, are more muscular and have a slight increase in frame compared to non-implanted calves.[3]

Applying calf prices during this period to the additional pounds gained equates to a $66 per head advantage over calves that were not implanted. Producers can potentially **add an estimated $115 per head by following a VAC45 program and implanting their calves**.

PrimeVAC™ preconditioning programs from Merck Animal Health focus on respiratory and clostridial vaccinations, as well as protection against internal parasites. Programs also include optional implant protocols. PrimeVAC can clarify for your clients the steps needed to give their calves the best start and enable you to certify their efforts with a signed certificate to add value at the sale barn.

Midsummer deworming pays off

New research shows that implementing a strategic deworming program can provide season-long parasite control and help cattle on summer pasture maximize their potential.[4] The research trial compared grazing performance and economics, parasite enumeration and pasture larval contamination over a 99-day summer grazing period.

Steers that received follow-up treatments of a dewormer after processing gained an average of about 17 more pounds and had 0.18-pound greater average daily gain than steers that received only one treatment at processing. Considering today's market prices, midsummer deworming could result in a $23-$27 per head profit margin.

Free, on-demand RACE credit

Learn more about the research highlighted here. Scan the QR code for the on-demand webinar.

Presenters:

Chris Thomsen, DVM
Beef Technical Services
Merck Animal Health

Wade T. Nichols, Ph.D.
Senior Technical Services Manager
Merck Animal Health

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