QUARTER 4 | 2020

HEIFER NOTES

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DAIRY CALF & HEIFER ASSOCIATION

Commercial dairies can reach new passive immunity standards – at calf and herd levels.

Calf experts set new passive transfer standards for dairy calves

It's time for dairy producers to up their game when it comes to transfer of passive immunity (TPI) for their newborn calves. TPI comes from newborns ingesting colostrum, which includes immunoglobulins (Ig). Calves need Ig because the placenta does not allow Ig transfer from the dam to the calf. TPI is determined by measuring calf serum IgG or total protein (TP).

During the 2020 Dairy Calf and Heifer Association (DCHA) Conference, Jason Lombard, U.S. Department of Agriculture Animal and Plant Health Inspection Service: Veterinary Services, Fort Collins, Colo., explained that for more than 30 years, the dairy industry used 10 g/L of immunoglobulins as its recommended standard. Up until now, calves with less than 10 g/L were considered to have failure of passive immunity, whereas those greater than 10 g/L were categorized as having successful passive immunity.

Even though failure of passive immunity declined from 41 percent of dairy heifer calves (1991-92 national dairy study) to 13 percent (2014 national dairy study), preweaning calf morbidity, primarily scours and respiratory disease, remained at nearly 30 percent. From 1996 to 2014, preweaning dairy heifer calf mortality dropped from 10.8 percent to 6.4 percent. Currently, nearly 90 percent of calves meet the 10 g/L for serum IgG standard.

"Based on the fact that the percentage of calves with failure of passive immunity had decreased significantly, yet preweaning calf morbidity remained steady, the current standard of 10 g/L of IgG (approximately 5.2 g/dL total protein) was scrutinized," Lombard reported. So, 2.5 years ago, some U.S. and Canadian calf experts discussed new passive immunity standards. The group agreed that calf- and herd-level standards needed to be realistic and achievable by commercial dairies.

Table 1. *Consensus serum IgG concentrations and equivalent total protein (TP) and Brix measurements, and percentage of calves recommended in each TPI category. Modified from Godden et al., VCNA 2019.*

TPI Category	Serum IgG categories (g/L)	Equivalent TP (g/dL)	Equivalent Brix %	Farm Level % calves[1]	NAHMS* Study % calves[2]
Excellent	≥25.0	≥6.2	≥9.4%	>40%	35.5%
Good	18.0–24.9	5.8–6.1	8.9–9.3%	~30%	25.7%
Fair	10.0–17.9	5.1–5.7	8.1–8.8%	~20%	26.8%
Poor	<10.0	<5.1	<8.1%	<10%	12.0%

1 Consensus recommendation for percent of a farm's calves in each category
2 Percent of calves in NAHMS 2014 Dairy study in each consensus category
** National Animal Heath Monitoring System*

4 TPI categories

Rather than establishing a single cut point, the new TPI standard includes four categories – excellent, good, fair and poor. Table 1 shows the consensus serum IgG concentrations, equivalent total protein and percent Brix measurements, and percentage of calves recommended in each category. "The consensus recommendations are achievable by commercial dairy operations with good colostrum management programs," Lombard stated.

With experts claiming that these new standards are achievable, what practices do they recommend to reach these higher goals? Provide a single feeding of colostrum within approximately two hours after birth and deliver approximately 300 g of IgG. Or, provide multiple colostrum feedings and deliver approximately 400 g of total IgG in the first 24 hours.

Lombard noted that multiple studies show that feeding high-quality colostrum within two to four hours after birth will achieve excellent TPI. "Although many dairy producers provide a single feeding of colostrum and achieve the consensus standard, there are benefits to multiple colostrum feedings."

One calf study reported that calves fed transition milk (combination of colostrum and milk) had larger intestinal villi – allowing for more nutrient absorption (Inabu et al., 2019). Normal bacteria populations in the gut were more numerous when calves were fed within 45 minutes of birth, compared with calves fed their first feeding of colostrum at 6 and 12 hours of age (Fischer et al., 2017).

Heat treatment lowers bacteria load

Are you concerned about colostrum cleanliness? Consider heat treating colostrum. This practice – 60° C. for 60 minutes – typically reduces bacterial concentrations while maintaining colostral IgG concentrations (Elizondo-Salazar and Heinrichs, 2009). "Their evaluation of calves fed heat-treated and unheated colostrum showed greater serum IgG concentrations in calves fed heat-treated colostrum but found no differences in growth or health scores," Lombard reported. Please note that the average serum IgG concentration was more than 20 g/L in both study groups, which might explain why a significant difference in health and performance was not observed.

With these new standards for heifer and bull calves, the team that developed the benchmarks believes dairy producers can improve calf health and productivity.

To read Lombard's complete paper that appeared in the 2020 DCHA Resource Guide, go to: **bit.ly/DCHA2020ResourceGuide**.

Winterizing calves

By Jennifer Trout, DVM, Cargill calf and heifer specialist

We all do it usually sometime between Labor Day and Thanksgiving, and it usually involves our vehicles, homes and wardrobes; we winterize. Winterizing ourselves and our things is a proactive solution that helps us avoid problems associated with dropping temperatures and is a tactic that can also be applied to your calves.

When the temperature is low, a calf's body responds by producing heat (thermogenesis), which for a newborn calf is often produced one of two ways — the break down of brown fat (BF), which is readily available energy. Or by shivering, which produces heat in a similar way to exercising or moving around. The latter can and should be avoided as it takes energy from the calf that could be used for growth and health.

Use proper safety measures when preparing for and dealing with winter's harsh elements.

How to winterize calves:

Maternity Pen — Keep this area clean and dry. If necessary, add new bedding daily and clean out old straw once a week. Once a new calf is born, consider using a towel to dry it off before moving it to a hot hutch or warming area.

Warming Area — This can be a hot hutch or an enclosed area with straw and heat lamps (use proper safety measures for installing and using heat lamps inside). Heating areas are critical for calves as it allows them to dry, break down BF and rest without shivering (using more energy than needed). It is equally as important to keep this area clean, dry and not too crowded. I recommend moving calves once they are dry, fed colostrum and all newborn protocols complete.

Hutches — These three-sided wind breaks can do a great job keeping calves warm, as long as they are well bedded (12–18 inches of dry straw). Calves should be able to nest into the bedding with their legs not visible. In addition, use calf jackets when night temperatures are consecutively less than 40° F. Continue to use them as long as the ground is frozen. Another precaution during windy/snowstorm weather is to insert a hutch door in the opening of the hutch. Certain hutch brands provide these, but they can also be constructed with straw bales, plywood or other sturdy material.

Feed — Calves 21 days and younger require at least 3 liters of milk per day just to fulfill their maintenance requirements. Calves' thermoneutral zone is 50–78° F. For every degree less than 50° F., a 1 percent increase in energy is required. If it is 20° F., calves need 30 percent more energy to stay warm and healthy. Work with your nutritionist and veterinarian to incorporate one or all of the below tactics:

1. Add a third daily feeding of milk replacer or increase milk volume per meal.
2. Increase the fat content (no more than 15 percent total solids) of milk replacer feedings. Or, if feeding whole milk, add an enhancer or fortified powder. Gradual increases are best to avoid scours.
3. Improve starter-grain intake in older calves who can compensate for higher nutrition demands in cold conditions by eating more starter.

Find more helpful calf and heifer management information at **cargilldairydreams.com** *in the Resources tab.*

** The Dairy Calf and Heifer Association does not support one product over another and any mention is not an endorsement by DCHA.*

Apply for DCHA $1,000 scholarship

The Dairy Calf and Heifer Association (DCHA) is now accepting applications for its scholarship program. The selected applicant will receive a $1,000 scholarship. Applicants must be a college student and a DCHA member (or parent/legal guardian is a DCHA member).

Through this program, DCHA invests in the dairy industry's future by offering financial support to a student focused on a career in agriculture. "Higher education provides an excellent foundation for continuous education, which is one of DCHA's cornerstones," said Elizabeth Quinn, DCHA board president. "Today's students become tomorrow's producers, veterinarians, advisers and consultants, who play key roles in sustainable dairy calf and heifer enterprises. DCHA proudly provides a $1,000 scholarship to a deserving student who will help grow the dairy industry's future."

The annual DCHA scholarship is awarded to a student currently enrolled in an agriculture-related program at an accredited college or university. Applicants must have completed at least one year of post high school education. An individual may only receive the scholarship once.

Go to: https://calfandheifer.org/scholarship for more information and to apply.
Applications must be received by end of business day, Feb. 24, 2021. E-mail completed applications to **jodee@calfandheifer.org.**

TO APPLY FOR THE SCHOLARSHIP, APPLICANTS MUST:

- ☑ **Be a member of DCHA**; or the son, daughter or legal dependent of a DCHA member
- ☑ **Have completed** at least one year of post high school education
- ☑ **Be an enrolled student** in good standing at an accredited college or university
- ☑ **Be enrolled in a field of agriculture** (e.g., dairy science, animal science, veterinary science, agricultural technical program, ag communications) or in a course of study with relevance to agriculture; preference is given to dairy calf/heifer-related fields

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Heifer Notes is published quarterly by the Dairy Calf and Heifer Association and distributed to all DCHA members and associated organizations through a partnership with *Hoard's Dairyman*.

DCHA to celebrate Silver Anniversary in Appleton, Wisconsin

Make plans to help the Dairy Calf and Heifer Association (DCHA) celebrate its 25th Anniversary during its annual conference and trade show – April 6-8, 2021 – at the Red Lion Hotel Paper Valley in Appleton, Wis.

The conference kicks off with an optional tour to Shiloh Dairy, Brillion, Wis., a third- and fourth-generation family farm that milks nearly 2,000 Registered Holsteins. The herd produces about 155,000 pounds of milk daily. Conference organizers created the theme "25 Years of Growing Your Dairy's Future" to acknowledge DCHA's solid foundation established in 1996 and to look forward to building an even stronger organization that helps grow a sustainable future for dairy calf and heifer growers, and dairy producers around the world.

Terri Ollivett

During a general session, Terri Ollivett, a DCHA board member and University of Wisconsin School of Veterinary Medicine assistant professor, will review DCHA's Gold Standards and focus on recent changes regarding colostrum management and evaluation, and resting space requirements. Now available in English and Spanish, the DCHA Gold Standards provide industry benchmarks and best management practices for raising dairy calves and heifers.

Matt Rush

In addition, Matt Rush, a farm boy raised in New Mexico, will deliver the keynote address – There's a snake in my bumper – and a general session presentation – Planting the seeds of greatness. Rush believes that as times have changed, populations have exploded and the general public has become more removed from the American farm. The need for us to tell our story has become increasingly vital. "American agriculture MUST reintroduce herself to this nation and the nations of the world," he stated. "We must tell our story and we MUST remain viable, valuable and visible."

CONFIRMED BREAKOUT SESSIONS AND SPEAKERS INCLUDE:

Targeting the immune system to reduce and prevent bovine respiratory disease

Jodi McGill, Iowa State University

Vaccinating calves and heifers: Why do we do what we do?

Amelia Woolums, Mississippi State University

Key aspects of solid feed for calves from birth to post-weaning: Nutrients, physical forms and quantity

Alex Bach, ICREA

Nutritional strategies to support recovery of diarrheic calves

Juliette Wilms, Trouw Nutrition

Serum total protein: An accurate or deceiving test for monitoring passive transfer status

Mike Nagorske, SCCL

Dairy data deep dive: Insights on the impact of early life on future performance

Jackie Boerman, Purdue University

Healthy Calves + Efficient Operation = Sustainable Business

Ecolab representative

Employee relations panel

Moderator: *Jorge Delgado, Alltech*

Panelists: *Emily De Benetti, Oxford Cattle Co., Clint AI-Ag, Blue Sky Farms, Sandy Larson, Larson Acres, Sarah Daugherty, Paramount Calves, and Shawn Miller, Pagel's Ponderosa Dairy*

Calf housing panel

Moderator: *Jeff Langemeier, SCCL*

Panelists: *Chuck Stokke, Calftech Corp., Jan Gawthrop, CalfCare Veterinary Practice, and Paul Colgan, Patterson Farms*

FIND OUT MORE!

DCHA Annual Conference registration will open in January. Trade show registration will open in December. Make hotel reservations by calling 920-733-8000 and mention DCHA to take advantage of the group rate of $119 per night plus applicable taxes.

calfandheifer.org