BEEF-ON-DAIRY INDUSTRY REPORT

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TROY WISTUBA, PH.D.
Vice President Feed and Additive Technical Innovation
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Dr. Troy Wistuba is the vice president of feed and additive technical innovation for Purina Animal Nutrition. In this role, he helps bring innovative products and ideas from the research and technical teams to dairy farmers. Dr. Wistuba earned his Ph.D. in ruminant nutrition from the University of Arkansas.

STEERING THE HERD FOR BEEF-ON-DAIRY SUCCESS

There's a growing trend in the market for beef-on-dairy cattle. This shift reflects a response to factors reshaping the beef industry, such as changing consumer demands, low beef cattle numbers, economic considerations and environmental impacts.

What's driving this trend? It's the chance for producers to add extra income to their operations. A recent survey showed that 80% of dairy farmers and 58% of calf raisers receive a premium for beef-on-dairy crossbred calves.[1]

This presents a unique opportunity for both dairy producers and cattle ranchers to reshape the supply chain and maximize the added value of these cattle. There are numerous potential benefits of beef-on-dairy cattle for producers, packers and consumers, including:

CONSISTENT BEEF SUPPLY:
A result of continuous breeding in the dairy industry to keep up with consumer demand.

TRACEABILITY FROM FARM TO FORK:
Ability to trace source, parentage, genetic capability and production practices for each animal.

LOWER CARBON FOOTPRINT:
Potential for greater feed efficiency and reduced greenhouse gas (GHG) emissions that may be associated with beef-on-dairy production.

INCREASED MEAT QUALITY CHARACTERISTICS:
Higher red meat yield, improved quality grade, more desirable meat color and enhanced marbling compared to traditional dairy steers.

From the initial stages of genetic selection that lay the foundation for breeding programs to the final stages of meat quality and finishing, every aspect contributes to the overall success of the beef-on-dairy sector. This report offers a comprehensive look at the beef-on-dairy industry to help empower dairy producers and cattle ranchers to work together to produce high-quality animals to help fill the increasing demand for exceptional beef.

[1] Purina Animal Nutrition. 2024. Dairy-Beef Survey.

A RECENT SURVEY REPORTED RECEIVING A PREMIUM FOR BEEF-ON-DAIRY CROSSBRED CALVES.

Among those reporting they receive a premium for their beef-on-dairy crossbred calves:

PER HEAD
Most dairy farmers indicated they are receiving a $150-$200 per head premium. Higher premiums were seen from $350-$700.

PER POUND
Those receiving a premium on a per pound basis are seeing premiums around $4-$6/lb. with a maximum of $8/lb.

VS. HOLSTEINS
Dairy farmers were consistent in saying the premiums received for beef-on-dairy calves were at a minimum 50% more than Holsteins, and one farmer estimated a 3x premium.

KIRSTEN NICKLES, PH.D.
Sustainability and Animal Care Scientist
Certified Angus Beef

Dr. Kirsten Nickles is the sustainability and animal care scientist for Certified Angus Beef. In her role, she leads the brand's sustainability initiatives and serves as a technical expert, encouraging the company and American Angus Association ranchers to positively impact the future of beef production. Dr. Nickles obtained her M.S. and Ph.D. in animal science from The Ohio State University.

INTENTIONALITY YIELDS QUALITY

Producing high-quality beef doesn't just happen. It's a way of life for beef and dairy producers. How we care for our animals, people and the land and resources determine the quality of products that nourish families across the U.S., including your own.

THE BEST BEEF IS RAISED WITH RESPECT

As consumers become further and further removed from the farm, establishing a deeper trust with them is critical. Consumers not only want a high-quality product but also want to feel good about how the animal was cared for. In a recent survey asking consumers what their biggest concern is about beef production, 29% responded animal welfare.[2]

Stewardship is the equal sign that bridges the gap in understanding cattle production practices and allows you to align your goals and management practices to meet consumer demands and desires.

Beyond consumer preferences, producers know cattle raised with respect – provided proper care, handling and nutrition – will grow faster, perform better and be more efficient than an animal poorly cared for and managed. This leads to a higher quality product and improved profitability.

29%
OF CONSUMERS SAY THEIR BIGGEST CONCERN ABOUT BEEF PRODUCTION IS ANIMAL WELFARE.

Achieving a high-quality end product starts before birth. Carcass traits, such as marbling, are a lifetime event requiring intentional management from genetic selection through finishing. To realize quality and deliver top-notch product to consumers, cattle cannot afford to have a bad day. Good stewardship practices aren't merely to check the box. Quality and livelihoods depend on it.

Knowing animal welfare is so important to both the producer and consumer, programs like Beef Quality Assurance (BQA) and the National Dairy FARM program offer science-based training and certifications for best practices in animal handling, animal care and responsible antibiotic use, helping producers demonstrate their commitment to animal stewardship.

HOW BEEF-ON-DAIRY CATTLE CONTRIBUTE TO THE NARRATIVE

The growing beef-on-dairy population can contribute added value to fulfill increased market demands and yield a higher quality end product consumers desire and expect. Not only this, but these programs also provide a better avenue to tell our story.

Beef-on-dairy programs are high-touch, providing the opportunity to influence growth and performance, which leads to a more efficient calf and a sustainable program.

Since the dairy industry relies on artificial insemination, we can make continuous genetic improvements, intentionally selecting for efficiency and carcass merit traits. By doing so, calves are more efficient and require fewer days on feed. So, we are reducing the amount of resources required to raise beef-on-dairy animals, lending to a more profitable and sustainable way to raise beef.

With proper calf care and management, beef-on-dairy programs also provide the potential for farm-to-fork traceability. When building trust with consumers, this becomes extremely valuable in telling our story. Being able to show how the animals and resources have been cared for and what health interventions have been utilized solidifies the industry's commitment to animal welfare.

INTENTIONAL MENTAL SHIFT

I am often asked if the beef-on-dairy population of calves diminishes the value of the conventional beef herd. Our focus at Certified Angus Beef has always been on producing a high-quality product. If we can add value to this industry through Angus genetics in dairy herds and continue to meet consumer demand, that is what we have always strived for.

There is no question that beef-on-dairy cattle provide an incredible value-added opportunity for our industry. These programs help us achieve production of a high-quality product, improve efficiency and contribute to a more sustainable food supply.

One caveat: If we want this population to truly be a value-added component of our industry, we must shift our mindset and be intentional across the entire supply chain. We need to work together and be good stewards of our land, animals and resources for quality output. It isn't simply enough to produce a black-hided calf. For the value to be fully realized, we must think less about creating an animal and more about producing it into something we are collectively proud to contribute to the supply chain and consumers are eager to purchase and consume.

[2] National Cattlemen's Beef Association Consumer Beef Tracker. Jan-Dec. 2022.

SARA PLACE, PH.D.
Associate Professor of Feedlot Systems
AgNext at Colorado State University

Dr. Sara Place is an associate professor of feedlot systems for AgNext and an expert in livestock systems sustainability. Her research focuses on enteric methane emissions measurement and mitigation from cattle. Dr. Place received her Ph.D. in animal biology from the University of California, Davis.

Interview with Dr. Sara Place

UNCOVERING THE OPPORTUNITY FOR DAIRY-BEEF CROSSBRED CATTLE TO POSITIVELY IMPACT CLIMATE CHANGE OUTCOMES

As the number of dairy-beef crossbred cattle entering the food production system rises, so does the potential for positive environmental impacts on the cattle industry.

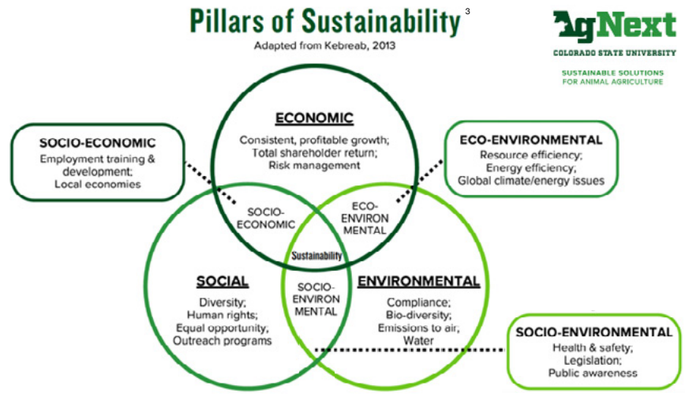
A challenge that dominates today for beef and dairy producers are the impacts of climate change and, more specifically, greenhouse gas emissions. Consumers, investors and policymakers alike want to better understand the contribution of cattle production to climate change and ways we can mitigate emissions from the industry.

Sara Place, Ph.D., associate professor of feedlot systems at Colorado State University's AgNext, says sustainability is a complex, multifaceted issue and often emotionally driven.

"There are three areas that encompass sustainability: economic viability, social responsibility and environmental stewardship, the last of which often gets the spotlight in the cattle industry," says Place. "When we think about sustainability in the cattle system, it's really about balancing these three areas and focusing long term on how our food production system can sustain and improve over time. This is an area where there's an opportunity for dairy-beef crossbred cattle to really shine."

The majority of greenhouse gas emissions from beef and dairy cattle production come from enteric methane production. From a carbon accounting perspective, dairy-beef allows for the opportunity to spread enteric methane emissions from the cows out over two commodities: dairy and beef.

"Beef and dairy crossbreeding creates an opportunity for a smaller carbon footprint because the dairy cow produces human edible food in the form of milk while also providing a calf to enter the beef system for meat," Place says. "While methane is still being created, the emissions are spread out across more units of human foods, which has the potential to result in a system with a lower carbon footprint."



Place stresses the importance of production efficiencies when it comes to carbon footprint.

"The beef system itself is complex, and we need grazing to feed animals out over the full 12 months of the year because almost all the calves in the U.S. are born in the spring. However, in traditional beef systems, we'll likely have longer lifetimes and that means more methane for the whole carcass gets produced as compared to animals that spend a shorter amount of time getting to harvest. We also need to think about factors like illness and mortalities," Place explains.

Whether a traditional beef system or a dairy-beef system, the elements that contribute from an economic and animal welfare perspective also matter from an environmental perspective. When cattle are well cared for and make it through the system in a healthy state with strong productivity, it can ultimately reduce the number of natural resources needed and methane produced per pound of beef.

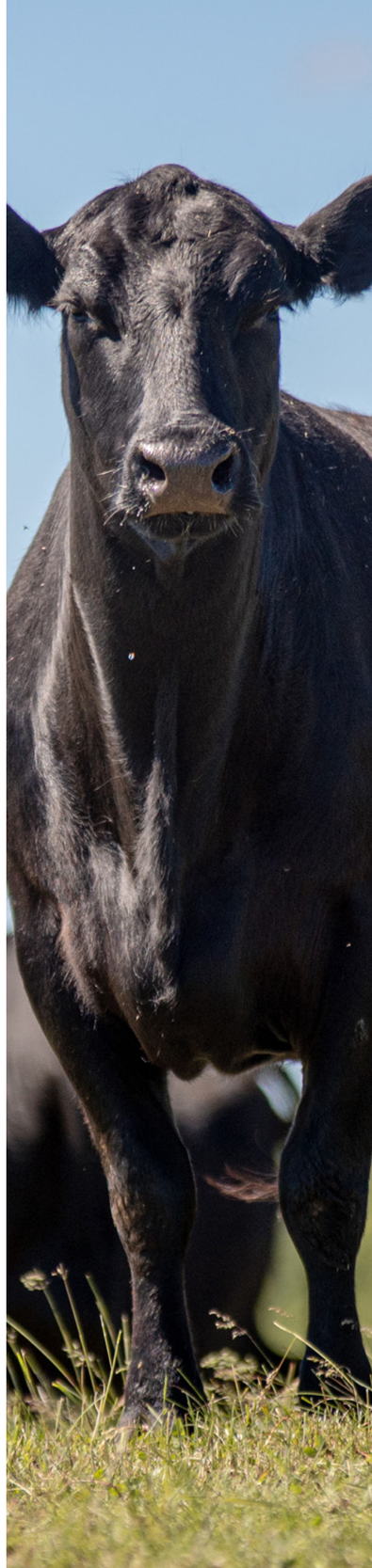
When compared to traditional Holstein genetics entering the system, dairy-beef animals have shown higher efficiency of gain and better meat quality. The inherent nature of the dairy-beef system also allows producers to be more high-touch with the cattle, offering an opportunity for sustainability efforts and interventions throughout the animal's lifespan.

"Bigger picture, it also gives us a runway to better test some of those questions we get from industry stakeholders and consumers, such as traceability. The opportunity to have positive environmental and health impacts on the animal's life is huge. Dairy-beef systems can allow us to research things like early life management and how it can potentially affect lifetime efficiency and emissions."

Dr. Place believes dairy-beef is a good example of highlighting just how integrated the whole cattle industry is.

"Historically, we've thought of these two industries as separate tracks in food production, but this is a great example to showcase how the cattle across both systems can be utilized to meet a variety of nutritional needs in the U.S.," Place explains. "This way of thinking can help us produce beef and dairy more sustainably in the future, but also make sure that producers can remain in business and be sustainable themselves."

[3] AgNext at Colorado State University. 2024. Pillars of Sustainability.



ROBERT WEABER, PH.D.
Professor and Department Head
Eastern Kansas Research and Extension Center
Kansas State University

Dr. Robert Weaber is a professor and department head for the Eastern Kansas Research and Extension Center as part of Kansas State University. The focus of his research and extension programs has been to broaden the availability, use and understanding of genetic selection tools and analysis of performance data collection schemes implemented by cattle producers. Dr. Weaber earned his Ph.D. from Cornell University in animal breeding and genetics.

THREE CONSIDERATIONS WHEN SELECTING SEMEN FOR YOUR BEEF-ON-DAIRY PROGRAM

As the beef-on-dairy sector continues to gain momentum, dairy producers are exploring using beef genetics in their breeding programs. Genetic selection shapes every aspect of a beef-on-dairy animal's life cycle. From birth to market, genetics forms the basis of the animal's potential success or challenges. Opting for superior genetics can yield better performing animals, while poor genetic choices can result in performance shortcomings.

Before these calves hit the ground, semen selection is the critical first step in building a successful beef-on-dairy program. Here are three considerations to guide producers in selecting semen that aligns with their operational goals:

1 | UNDERSTAND INDUSTRY DYNAMICS

With approximately 3 million beef-on-dairy cattle in the current market, the use of semen to produce these animals has increased. In the past, there has been limited knowledge of beef-on-dairy pairing criteria. Genetic companies saw the need for a better selection index to accommodate this production model. More research has been conducted to refine beef bull trait criteria, particularly for dairy cows, and create a beef-on-dairy sire directory and customized selection index produced with tools like iGENDEC.

It's critical to also understand the financial investment of using beef semen in dairy operations. Like breeding with dairy semen, it typically takes two to three services to settle a dairy cow with beef semen with prices ranging from $5-$10 per straw, plus additional fees associated with synchronization and breeding services from AI technicians.

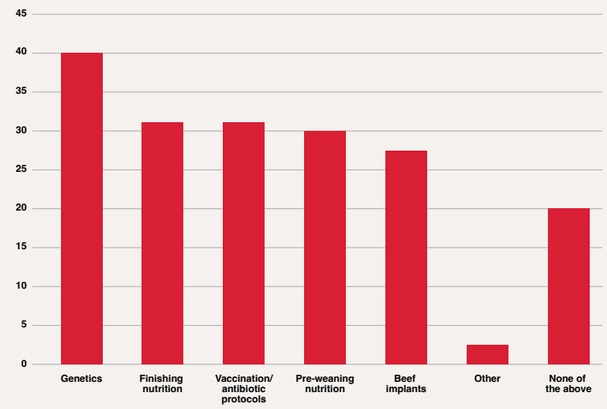
2 | CHOOSE BETWEEN DAIRY AND BEEF SEMEN

Dairy producers navigate the complexities of sire directories while considering the genetic makeup and future productivity of their herds. With a multitude of beef and dairy semen options, how can dairy producers make the most informed breeding decisions?

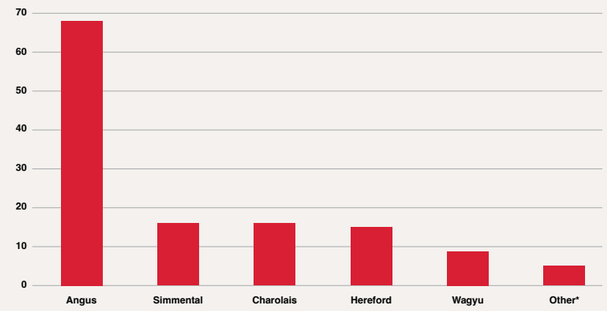
Consider the specific breeding objectives of your operation. Are the primary goals centered around maximizing milk production, ensuring high fertility rates or perhaps both? Dairy semen is the preferred option if the aim is to maintain or enhance dairy-specific traits such as milk yield and production of replacement females. On the other hand, if the focus is on enhancing growth rates, feed efficiency, improving carcass quality and aligning with market demands favoring beef characteristics, opting for beef semen is a more viable option.

Before selecting semen, keep current herd numbers and the availability of replacement heifers top of mind. Are there an adequate number of replacement heifers to maintain desired herd levels? Beef-on-dairy calves are highly valued and often priced higher than traditional Holstein or Jersey steers. The increased value prompts producers to favor beef semen over dairy semen for matings, resulting in fewer dairy cattle being born. This leads to an increased demand for dairy replacement heifers. Producers must find a middle ground between milk production and beef production, taking into account the unique characteristics and market demand for beef-on-dairy offspring.

Information regarding genetics of beef-on-dairy calves is the most sought after by dairy farmers. Finishing nutrition, health protocols and preweaning nutrition follow closely behind.



Among survey respondents, angus is by far the most popular beef semen used in beef-on-dairy programs.



67% **OF BEEF SEMEN USED IN BEEF-ON-DAIRY PROGRAMS IS ANGUS, MAKING IT BY FAR THE MOST POPULAR BEEF SEMEN.**

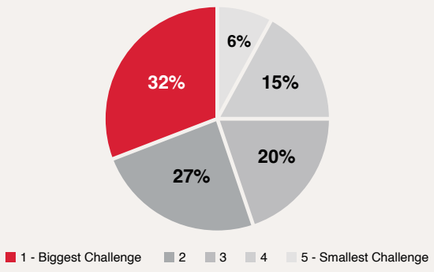
3 | EVALUATE SIRE AND DAM TRAITS

When you are selecting semen for beef-on-dairy matings, it is important to consider the traits exhibited by both the sire and dam. While sire genetics often take the spotlight, it's imperative not to overlook the valuable contributions of the dam. Effective breeding requires an understanding of the relative breed strengths and the need to leverage breed complementarity to optimally blend genetics that maximize calf value.

Advancements in breeding practices have debunked the misconception that using beef semen adversely affects milk production. So, producers no longer have to stick to the old rule of using beef semen only on their lowest performing cows. Instead, they can customize their breeding plans and choose beef traits and bulls/breeds that excel in those areas which complement Holstein and Jersey's genetic potential for marbling and consistency. High-priority traits in beef sires include increased growth performance, feed efficiency, ribeye area and shape, and red meat yield.

Genetics lay the foundation for the success of beef-on-dairy calves. Incorporating beef genetics into dairy breeding programs offers dairy producers an exciting opportunity to enhance their operations and maximize the value of their surplus calf stream. While genetics set the stage, the industry recognizes that success in beef-on-dairy breeding is multifaceted. Beyond genetics, other factors like nutrition and management play a critical role in overall development and helping the calf achieve its full genetic potential and value.

On a 1-5 scale, how challenging is choosing the right genetics for beef-on-dairy programs?



60% OF DAIRY FARMERS CONSIDERED CHOOSING THE RIGHT BEEF GENETICS TO BE THE BIGGEST CHALLENGE IN RAISING DAIRY-BEEF CROSS CALVES.

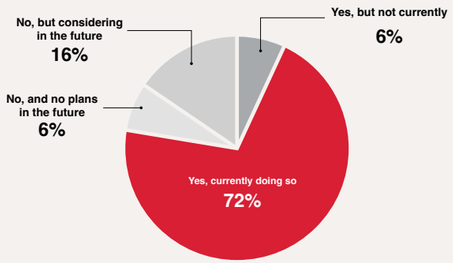
OLIVIA GENTHER-SCHROEDER, PH.D.
Sr. Technical Innovation Manager, CMR & Dairy
Purina Animal Nutrition

Dr. Olivia Genther-Schroeder is the senior technical innovation manager for Purina Animal Nutrition. Her passion is research and constantly analyzing data to glean new insights on dairy cattle and calf nutrition. Dr. Genther-Schroeder obtained her Ph.D. from Iowa State University studying trace mineral nutrition in feedlot cattle.

RAISING THE STEAKS: THE CRITICAL ROLE OF EARLY-LIFE NUTRITION AND MANAGEMENT IN BEEF-ON-DAIRY CROSSBRED CALVES

Beef-on-dairy crossbred calves present an avenue for producers seeking to capitalize on market demands for quality beef animals and to optimize performance outcomes. Two fundamental aspects emerge as a cornerstone for unlocking the full potential of these young animals: early-life nutrition and management.

Almost 90% of dairy producers are considering or currently raising beef-on-dairy cattle on their operation.



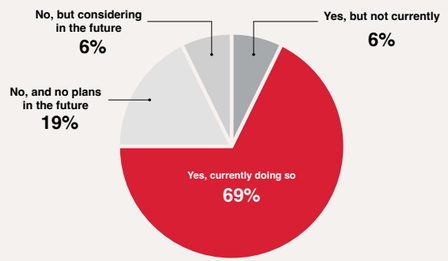
How calves are managed during the first 2-3 months of life determines many factors that will impact the path to successful growth and development. It's during the critical pre-weaning stage that their journey begins when their gut health and immune system can be shaped by what they eat.

When beef-on-dairy calves are fed a high-quality diet from an early age, they can grow faster with improved efficiency. Early-life nutrition influences muscle and fat development, important factors in the quality of beef they'll produce. By feeding them right starting at birth, we're helping them pack on muscle and develop the desired marbling producers strive for and consumers seek when they are making their beef purchasing decisions.

FOUR STEPS TO RAISING OPTIMAL BEEF-ON-DAIRY CROSSBRED CALVES

According to a recent survey, nearly 90% of dairy farmer respondents indicated they are currently or are considering implementing a beef-on-dairy program in their operations.[1] The reason why is clear: These animals offer a promising blend of traits that can lead to optimal growth rates and high-quality meat production compared to conventional Holstein steers. However, reaching the full potential of beef-on-dairy calves requires an attentive approach to their development. Here are four steps to help producers raise healthy, thriving beef-on-dairy calves and help maximize their performance from birth to market:

75% of calf ranch owners are considering or currently raising beef-on-dairy cattle.



1 | ENSURE ADEQUATE COLOSTRUM INTAKE

Colostrum plays a crucial role in laying the groundwork for calf health and immunity. It is essential to ensure beef-on-dairy calves receive sufficient colostrum intake to kickstart their journey toward optimal growth and health. Timely consumption of colostrum within the first hours after birth allows for transfer of passive immunity, where antibodies are transferred from the dam to the calf, providing its initial, short-term immunity.

This transfer is pivotal in providing immune defense to a calf with an otherwise naive immune system and shielding it from diseases during the vulnerable pre-weaning period. To ensure adequate colostrum intake, producers should closely monitor both the quality and quantity of colostrum provided to calves. It is recommended that calves receive 250 to 350 g of IgG from either pasteurized maternal colostrum, a whole bovine IgG colostrum replacer or a combination of the two within the first 12 hours of life. Whole colostrum and/or a dried whole colostrum replacer should be fed to ensure they receive the necessary nutrients, like colostral fat and the full array of biologically active compounds in addition to the essential IgGs, for a healthy start.

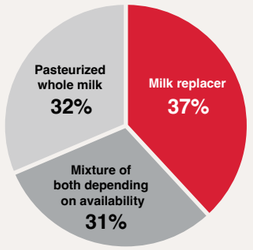
FOR EACH BRD CASE, CATTLE QUALITY GRADING DIMINISHES BY 1/3 OF A GRADE POINT, ACCOMPANIED BY A DECREASE OF 0.10 POUNDS PER DAY IN ADG.[4]

2 | PRIORITIZE SANITATION AND HYGIENE

Maintaining proper sanitation is crucial for preventing disease transmission and safeguarding calf health. Regular cleaning and disinfection protocols applied to feeding equipment and calf pens mitigate contamination risks and lower disease prevalence. Adequate ventilation, sufficient drainage and ample space contribute to establishing a hygienic and comfortable environment conducive to healthy calves.

Mismanagement challenges during early life expose calves to harmful bacteria and viruses, heightening the likelihood of ailments like bovine respiratory disease (BRD) and other recurring health challenges that impede growth and performance. For each BRD case, cattle quality grading diminishes by 1/3 of a grade point, accompanied by a decrease of 0.10 pounds per day in ADG.[4]

What are beef-on-dairy calves being fed?



3 | IMPLEMENT A BALCONED NUTRITION PLAN

Early-life nutrition plays a pivotal role in maximizing the growth potential of beef-on-dairy calves. These animals have unique dietary requirements that differ from purebred dairy or native beef calves. A balanced nutrition plan should include a combination of milk or milk replacer and starter feed like Purina® PrimeStart™. Aim to provide 1.8 pounds of dry matter intake per day from milk or milk replacer to increase feed efficiency and potentially lower the cost per pound of gain. Additionally, providing a high-protein starter feed of at least 20% protein on an as-fed basis can further support development during early life stages.

4 | FEED MILK FOR EIGHT WEEKS OR LONGER

Beef-on-dairy calves, like all calves, benefit from a longer milk-fed phase. By feeding milk for a minimum of eight weeks, calves have adequate time to transition from a milk-based diet to solid feed. Producers should focus on introducing a high-quality starter feed along with plenty of fresh free choice water two to three days after birth to encourage feed intake and support rumen development. This gradual transition minimizes stress and digestive upsets, ensuring a smooth adjustment to the post-weaning phase.

The journey of raising beef-on-dairy crossbred calves requires dedication, knowledge and a holistic approach to calf care. By adhering to the essential steps highlighted above – ensuring optimal colostrum intake, maintaining sanitary conditions, providing balanced nutrition and prolonging weaning age – producers can set their calves up for success and unlock their full potential.

[1] Purina Animal Nutrition. 2024. Dairy-Beef Survey.
[4] Schneider MJ, Tait RG, Busby WD, Reecy JM. An evaluation of bovine respiratory disease complex in feedlot cattle: Impact on performance and carcass traits using treatment records and lung lesion scores. J. Anim. Sci. 2009; 87:1821-1827.

4 REASONS WHY DAIRY PRODUCERS AND CALF RANCH OWNERS SAY IT IS IMPORTANT TO FEED BEEF-ON-DAIRY ANIMALS DIFFERENTLY.

1. **DIFFERENT NUTRITIONAL NEEDS**
2. **PHYSIOLOGICAL DIFFERENCES**
3. **PROVIDE ADEQUATE PROTEIN LEVELS FOR MUSCLE DEVELOPMENT**
4. **AID THEIR GROWTH, YIELD AND HEALTH**

DALE WOERNER, PH.D.
Professor and Cargill Endowed Professor
Texas Tech University

Dr. Dale Woerner is a meat science professor at Texas Tech University. He received his Ph.D. in animal science and meat science from Colorado State University. Upon graduation from CSU, he joined the faculty. Throughout his career, he has conducted more than $15 million in industry-funded research and published more than 300 scholarly manuscripts and technical reports on meat science.

6 WAYS BEEF-ON-DAIRY CATTLE BRING VALUE TO THE BEEF SUPPLY CHAIN

Over the last five years, Dale Woerner, Ph.D., professor and Cargill endowed professor at Texas Tech University, and his team have dedicated their research to learning more about beef-on-dairy crossbreds. From genetics to processing, they closely observed meat quality, carcass yield and consumer preferences. Their findings revealed that with genetic improvements and proper management and nutrition, beef-on-dairy cattle are highly competitive in the marketplace, charting quality and yield numbers that rival conventional beef.

Quality pays, and with a beef-on-dairy animal, producers are creating a high-quality animal. As more beef-on-dairy cattle make their way onto dinner tables across the country, a few key factors contribute to their value in the U.S. beef supply chain.

CONSISTENT ANIMALS AND SUPPLY

Due to the nature of milk production, dairy operations can offer a consistent, year-round supply of calves. Additionally, dairy dams offer highly consistent genetics, so when crossed with sires selected for complementing traits, we can provide U.S. packers with both a consistent animal and supply, which delivers ease of processing and helps stabilize the market.

HIGHER RED MEAT YIELD

Although beef-on-dairy calves cannot boast as high of a dressing percentage as conventional beef cattle, they offer distinct carcass advantages over their dairy cousins. Their increased muscularity and smaller skeletal size lend to a higher lean red meat yield and lower bone percentage.

IMPROVED QUALITY GRADE

Beef-on-dairy calves can be expected to grade like conventional beef animals with a large majority grading Choice or higher. They are a true intermediate between conventional beef and purebred dairy animals, inheriting the muscularity from the sire and superior marbling from the dam.

CONSUMER APPEAL

Consumers tend to buy food products based on their appearance. However, traditional lean meat from dairy cattle lacks the bright cherry-red color shoppers look for in the meat cooler. This led retailers to segregate dairy cattle products from the more visually appealing conventional beef. Research conducted at Texas Tech University has found that beef-on-dairy products achieve the desired color, mimic conventional beef's larger and rounder retail cuts, and have a longer retail shelf life than traditional dairy beef. As a result, there is less food waste and an opportunity for the products to coexist in the meat cooler.

SUPERIOR CONSUMER EATING EXPERIENCE

Our research shows that beef from dairy crossbreeds delivers a superior eating experience. While Holsteins still top the charts for tenderness, beef-on-dairy animals excel in flavor, boasting a buttery profile thanks to their higher marbling.

SUSTAINABILITY

Beef-on-dairy cattle finish roughly 20% faster than purebred dairy animals. Data shows that beef-on-dairy cattle's feed to gain and average daily gain are compared closely to native cattle and are considerably better than their purebred dairy counterparts. This allows beef-on-dairy programs to produce the same amount of beef on less total feed and in a shorter amount of time, which lends itself to a more sustainable way of producing beef.

Additionally, as consumer interest in animal stewardship and sustainability grows, the traceability inherent in beef-on-dairy systems gains significance. Leveraging the robust recordkeeping of U.S. dairy operations, beef-on-dairy programs provide comprehensive information, including animal identification, birthdates and performance metrics. This traceability enhances operational sustainability efforts and adds value to exported beef and branded programs, meeting evolving consumer expectations.

Despite the advantages, beef-on-dairy cattle face one significant drawback. Liver abscesses pose one of the greatest challenges for this group of cattle in terms of cutability and quality. Beef-on-dairy calves experience a higher incidence and greater severity of liver abscesses, which can slow or even halt production lines. When adhered or ruptured abscesses are found, extra trimming and extensive equipment cleaning are required, leading to substantial production and efficiency losses and added expenses due to overall product loss.

While there's no immediate solution, proper animal health and nutrition management play vital roles in supporting and maintaining gut health to reduce the likelihood and severity of liver abscesses in all cattle.

CALF RANCH OWNERS CONSIDER ANIMAL HEALTH TO BE THE BIGGEST CONCERN WHEN RAISING BEEF-ON-DAIRY CALVES, INCLUDING:

- **Bovine respiratory disease (BRD) and pneumonia**
- **Gut health and liver abscesses**
- **Care and management**
- **Balancing feed intake to promote growth and maintain health**
- **Need for and cost of labor when animals are sick**
- **Vaccination and treatment protocols**

TED PERRY, M.S.
Director, Beef Cattle Technical Services
Purina Animal Nutrition

Ted Perry, M.S. is the director of beef cattle technical services for Purina Animal Nutrition. In this role, he works with cattle owners to solve real-time challenges using research and insights from studies conducted at the Purina Animal Nutrition Center. Perry earned his M.S. in animal science from Penn State University before conducting research at Cornell University.

BEEF UP: THE IDEAL FINISHING PROGRAM FOR BEEF-ON-DAIRY CALVES

The USDA's Cattle Inventory report reveals that the U.S. cattle inventory is the smallest it's been in 73 years.[5] At the same time, consumer demand for beef continues to grow steadily. This presents an opportunity for beef-on-dairy programs to help stabilize the beef supply and develop higher quality animals that will continue to provide quality products to consumers.

Today, beef-on-dairy animals make up approximately 18% to 24% of U.S. beef production, playing a critical role in supplementing the U.S. beef supply.[6] Since beef-on-dairy animals combine the traits of both native beef and purebred dairy animals, they offer acceptable growth and carcass traits, such as yield and quality grade with the economic advantage being around $0.15 cheaper per pound than beef breed feeder calves.

Beef-on-dairy animals are becoming popular at grocery stores due to their improved marbling consistency, tenderness, palatability and flavor. As a result, the future of beef-on-dairy crossbreeding looks promising, even when native beef cow numbers rebound. The only stipulation? We must raise them right.

To meet the market's demands and to produce top-notch beef that satisfies both packers and consumers, it's not only critical to start these animals right, but also to finish them right. This is why having a finishing program that prioritizes health and muscle growth in beef-on-dairy calves is so important and translates into fewer health issues, improved meat quality and greater returns.

18–24% **OF THE U.S. BEEF PRODUCTION IS BEEF-ON-DAIRY ANIMALS, PLAYING A CRITICAL ROLE IN SUPPLEMENTING THE U.S. BEEF SUPPLY.**

Achieving top-quality meat from beef-on-dairy calves demands a comprehensive approach to finishing. To effectively manage cattle health, growth and performance, cattle feeders can consider the following:

SOURCE ANIMALS FROM REPUTABLE OPERATIONS:
Animals coming from reputable operations with accurate health records and a strong nutritional background will be most successful in the feedlot. Calves with an unknown health and nutrition history can increase production costs due to extended feeding time and treatment costs. If cattle are coming from multiple locations, avoid immediate comingling. Keeping cattle from different locations in different pens can reduce the risk of widespread disease outbreaks.

ENSURE USE OF GOOD ANIMAL HUSBANDRY PRACTICES:
Use handling techniques that minimize stress and ensure cattle pens have adequate bedding and are appropriately stocked.

IMPLEMENT STRONG VACCINATION AND TREATMENT PROTOCOLS:
Work with your veterinarian to implement a vaccination and treatment program to mitigate the negative effects of respiratory disease and other illnesses.

ESTABLISH A SOLID NUTRITION PROGRAM:
Producers have one chance to ensure beef-on-dairy calves begin their journey on the right hoof. If this critical timeline is overlooked, these calves may fall short of reaching their full potential. Provide cattle with a well-balanced diet and nutrients to support the immune system throughout the transition period. Working with a nutritionist to help balance nutrients is key to achieving your overall growth and performance goals.

[5] United States Department of Agriculture. 2024. USDA Cattle Inventory Report.
[6] Progressive Dairy. 2019. "Dairy cow slaughter high, but let's put dairy-beef numbers in perspective."

In addition to maintaining overall health, nutrition is vital for achieving an optimal lean-to-fat ratio in cattle prior to processing. Given that these calves are neither native beef cattle nor purebred dairy steers, their nutritional requirements are different. Research conducted at the Purina Animal Nutrition Center has identified that beef-on-dairy calves do very well on high-protein, high-energy diets. Carefully managing the finishing diet to include the right balance of roughages, forages and grain can play a key role in helping calves maintain a healthy gut to avoid issues like acidosis that can lead to liver abscess challenges as well as aid in the development of lean muscle desired by both packers and consumers.

Although there may be a desire to achieve heavier carcasses to increase profit potential, overfeeding these naturally small-stature animals can lead to excess fat that will need to be trimmed, which can negatively impact the overall dressing percentage and yield grade. That's why feeding a program that prioritizes lean muscle gain is so important.

Ensuring that only the highest quality beef-on-dairy calves reach packers is a process that begins from the very first day of the animal's life. By implementing comprehensive strategies at every stage of development, from birth to finishing, we establish a solid foundation for producing superior beef. The finishing stage serves as a crucial opportunity to build on the strong foundation built in the preweaning phase and further enhance the quality and characteristics of the beef, ultimately delivering exceptional products to consumers.

WHILE THERE ARE A FEW PRONOUNCED CHALLENGES OF RAISING BEEF-ON-DAIRY, THERE ARE MANY OPPORTUNITIES THIS SECTOR OF THE CATTLE INDUSTRY PROVIDES, INCLUDING:

- **INCREASED RED MEAT YIELD, PROVIDING A HIGHER VALUE CARCASS.**
- **YEAR-ROUND SUPPLY TO SUPPLEMENT BEEF CATTLE SHORTAGE.**
- **SATISFYING CONSUMER PREFERENCES AND DEMAND FOR HIGH-QUALITY BEEF.**
- **ELIGIBILITY FOR CERTIFIED ANGUS BEEF CERTIFICATION.**
- **FARM-TO-FORK TRACEABILITY.**
- **WIDENED SIRE SELECTION FOR IMPROVED GENETICS.**
- **SUSTAINABILITY: LOWER CARBON FOOTPRINT AND EFFICIENCY ADVANCEMENTS.**
- **INCREASED OPPORTUNITY FOR INDUSTRY COLLABORATION TO MAXIMIZE PROFIT.**

CONTACT YOUR LOCAL PURINA REPRESENTATIVE OR VISIT PURINAMILLS.COM/DAIRY-BEEF.

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[5] United States Department of Agriculture. 2024. USDA Cattle Inventory Report.
[6] Progressive Dairy. 2019. "Dairy cow slaughter high, but let's put dairy-beef numbers in perspective."