THE PULSE

Fall 2021 • Holstein Association USA, Inc.

U.S. REGISTERED HOLSTEINS®

THE WORLD'S PERFECT COW

MILK – NATURE'S SUPER FOOD!

While most of us are keenly aware of the many benefits of dairy in our diet, sometimes a brief review is appropriate. Perhaps there will be some items in this column you might want to share with others who are less enthusiastic about milk and other dairy foods. As dairy farmers, you should be proud of the wonderful food you play such an integral role in producing.

Some brief history

The health benefits of milk and dairy products are nothing new, and later in this article I will touch on some of the new research that bodes well for all of us. First a bit of history, from the book "The Most Nearly Perfect Food, the story of milk", written by Dr. Samuel J. Crumbine, General Executive, American Child Health Association; formerly State Health Officer of Kansas; and Dr. James A. Tobey, Author, The Quest for Health, the National Government and Public Health, Public Health Law, etc., formerly Secretary, National Health Council. Written way back in 1929, they penned, "Milk has been called by its enthusiastic proponents the modern elixir of life. Without dealing in superlatives, it can indeed be said that milk is the most nearly perfect of human foods for it is the only single article of diet which contains practically all of the elements necessary to sustain and nourish the human system."

Drs. Crumbine and Tobey wrote of the average duration of life at the time of their writings, and on ways to try to defer old age. The scholars wrote, "Ask any scientist what is the national drink in the United States today and, in spite of the reputed popularity of various forbidden beverages, he will answer – milk. There has been a tremendous increase in the consumption of milk and the use of dairy products during the last decade and this has unquestionably been one of the factors in adding to the marked increase in our lifespan."

The authors continued, "The role of nutrition in the promotion of health is, however, no longer a matter of supposition or mere speculation, for a legion of investigations by eminent scientists have removed all doubts on that score and have proven conclusively that an adequate diet is essential to proper growth, general physical welfare, and good health."

Just the facts

Dating back to the time of those early scholars to today, it's been proven time and again that dairy foods are important sources of nutrients for not only growing children and teens, but all humans. Dairy products are loaded with essential vitamins and minerals, including protein, calcium, potassium, Vitamins A, D, B12, Riboflavin, carbohydrates, and niacin.

Just one serving of milk meets the Daily Values (DV) for calcium, Riboflavin, phosphorus, Vitamin D, and pantothenics, potassium, Vitamin A, and niacin based on Food and Drug Administration guidelines. Yes, milk is the most nearly perfect food.

More dairy, lower heart risk

Now for the latest, I'm delighted with the dairy news as reported in the October 8, 2021 issue of *The Week* magazine. In a snippet titled, "More dairy, lower heart risk", it states, "High consumption of full-fat cheese, yogurt, and milk is linked to a lower risk of cardiovascular disease, new research suggests. An international team of researchers examined the dairy fat intake of more than 4,000 Swedish 60-year-olds, using blood samples to obtain an accurate figure. They then followed the participants for an average of 17 years to see how many suffered cardiovascular problems."

Quoting from the piece, "After adjusting for lifestyle factors, they found that those with the highest levels of dairy fatty acids in their blood had the lowest risk for cardiovascular disease and no increased risk of death from all causes. The researchers say a meta-analysis of 17 similar studies confirmed their findings. 'There's increasing evidence to show that the type of dietary fat, or the source of dietary fat, is actually more important than the amount of fat,' lead author Kathy Trieu, from the George Institute for Global Health in Australia, reports."

According to the article, "A full-fat unflavored yogurt, for example, can be a healthier choice than a low-fat flavored yogurt with added sugar."

Cincinnati Bengals enjoy dairy protein

Recently I saw an excellent video of Erin Kratzer-Kelly, MS, RDN, LDN, Head of Nutrition for the Cincinnati Bengals, and C.J. Uzomah, tight end for the Bengals, in which they extolled the virtues of dairy. Kratzer-Kelly, the Head of Nutrition for the Bengals NFL football team stated, "I encourage all of my athletes to include dairy in their diet because it contains all the essential building blocks of protein that our bodies can't make on their own." She went on to say how dairy foods are a great source of high-quality protein.

Tight end Uzomah explained how he makes sure he gets at least three servings of dairy daily, and that he's particularly fond of chocolate milk, yogurt parfaits, and smoothies. Uzomah enjoys drinking chocolate milk after football practice. Erin and C.J. are excellent ambassadors for dairy, and their messages should be received well by people of all ages.

Erin Kratzer-Kelly, Head of Nutrition for the Cincinnati Bengals
Picture courtesy of American Dairy Association Mideast

Drink more milk

Increasing consumption of milk and other dairy foods in the United States and abroad is the cornerstone for raising the price you're paid for the nutritious milk you produce at your farm. We have far more delicious, nutritious varieties of milk and dairy products than we've ever had before, and advertising, social media, and promotional opportunities that were not imaginable in the past.

Let's all do everything we can to seize the moment, and maximize the opportunity we've been given to increase fluid milk and other dairy product sales each and every day.

Here's to milk! Happy Thanksgiving!

John M. Meyer, Chief Executive Officer
Holstein Association USA, Inc.

C.J. Uzomah, tight end for the Cincinati Bengals
Picture courtesy of American Dairy Association Mideast

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— Erin Kratzer-Kelly, MS, RDN, LDN,
Head of Nutrition for the Cincinnati Bengals

STRATEGIC SIRES

Nebraska dairyman maximizes potential through Holstein Marketplace Sires and HOLSim Beef.

As a young man, John Steffen believed he was destined to be an accountant. That is until a tragic accident set his life on a different course. His father lost his leg in a farm accident in 1990, and Steffen returned home to the Hartington, Nebraska, dairy.

"The beauty of the Holstein cow called me back," Steffen says. "I've always been intrigued by how efficient the Holstein cow can be. That and the genetic aspect is really what enticed me to get into the dairy industry."

Today, Steffview Dairy milks around 400 cows in a double-12 parallel parlor. In 2020, they were recognized as Nebraska's top producing herd. Steffen says they typically run around a 29,000 rolling herd average with 3.8% fat and 3.1% protein.

"This is only made possible through good genetics," he adds. "My father encouraged me to always do better tomorrow than I did today. That's why I chose Registered Holsteins."

The registered herd has given Steffview Dairy the ability to diversify and maximize each mating with strategic sire selection. To meet these goals, Steffen employs two Holstein Association USA programs — Holstein Marketplace Sires and HOLSim™.

Bulls by breeders, for breeders

When looking to produce the next generation of high-producing dairy cows, Steffen says he looks to Holstein Marketplace Sires. It's a marketing effort allowing Holstein breeders to sell their genetics. They retain ownership of the bull, and Holstein Marketplace Sires coordinates semen sales.

Steffen says the bulls available through the program, and the Holstein breeders behind them, are a great fit for his operation.

"Holstein Marketplace Sires offers us the type we're looking for, as well as the production," Steffen says. "Over the years, I've used Foghat, Charisma, Ryno, Rip City."

"What intrigued me most was that these are breeders who have been in the industry. They've stood the test of time and they have deep cow families. I feel that's the most important thing in a breeding program."

Holstein Marketplace Sires was launched in 2019, and Steffen says he is beginning to see the results play out in his herd. The conception rates have been phenomenal. He estimates about 10 percent improvement since using semen purchased through Holstein Marketplace Sires.

"My father encouraged me to always do better tomorrow than I did today. That's why I chose Registered Holsteins."

- John Steffen

Paula, Keaton and John Steffen at
Steffview Dairy in Hartington, Nebraska

"I would recommend Holstein Marketplace Sires to other breeders because I feel that they are priced as competitive as any semen in the industry," Steffen says. "I've been really happy with the service."

Beef on dairy

A growing trend in recent years, more dairy producers are looking to beef-on-dairy matings to improve marketability of their calves.

Steffen says this approach has worked well for them, adding value to animals they don't need as replacement heifers. He was an early participant in Holstein Association USA's HOLSim program, a joint effort with the American Simmental Association identifying preferred matings to complement dairy females.

"HOLSim provides a list of recommended sires to make a good beef-on-dairy cross. We've been very pleased with those sires," Steffen says. "We get a calf that gains well, born with a light birthweight and can convert feed."

To date, he has marketed more than 60 head of HOLSim calves, all about 800 pounds, and he says they've sold for prices comparable to straight black calves.

"They are easy to sell," Steffen says. "I take them to the stockyards on the day that they have their beef sale. They typically bring a premium, and sell right along with the best of the black Angus cattle."

He adds the calves have a lot of vigor when they are born. They are thick muscled and overall very healthy. Because of the success they've seen, Steffen says he would recommend this approach to fellow dairy producers.

"Through the use of HOLSim, it's peace of mind knowing when you take a group of calves to town, you are going to be able to sell them and make some money," Steffen says. "That gives me a sense of pride, not only in growing a nice looking group of calves, but also taking a check to the bank."

At the rate of genetic advancement, technology and opportunities, the key to staying productive is embracing creative ideas and strategies for the herd. Dairy farming is ever changing, with new horizons to explore.

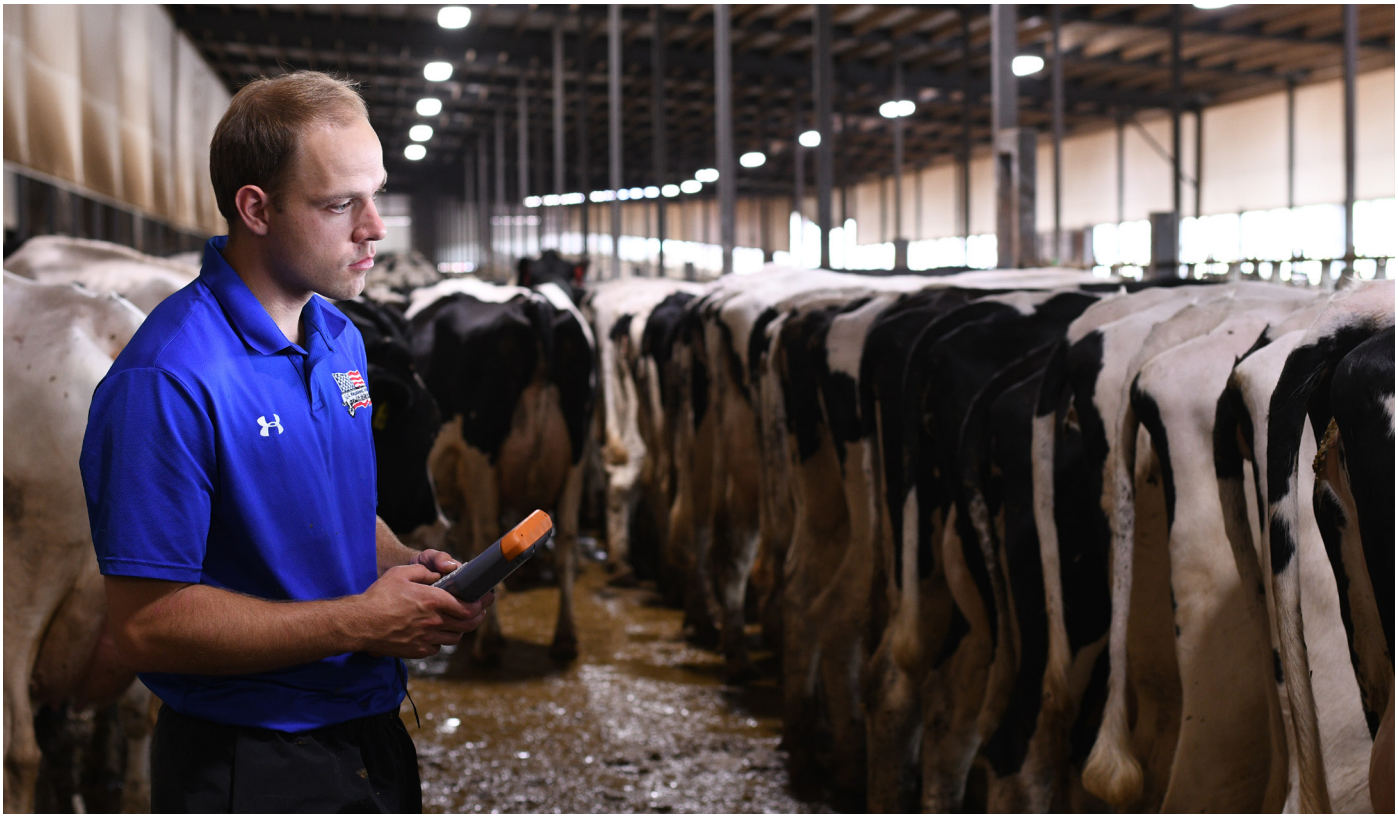
"The reason I love dairy farming is it's a daily challenge," Steffen says. "Every day you get up and there's something new. I can honestly say in 31 years, there's never been two days the same."

WHAT IS HOLSim™ AMERICAN BEEF

The HOLSim™ program is a partnership between Holstein Association USA and the American Simmental Association. For Holstein producers using beef in their breeding programs, it identifies Sim-Angus bulls most complementary to a Holstein female to produce a more profitable terminal calf.

Bulls qualifying for the HOLSim list are specifically selected to address the economic challenges associated with Holstein cattle — in particular, calving ease, grading ability, ribeye size and a sensitivity to carcass length.

By using HOLSim sires, producers can improve the profitability and predictability of resulting calves, making them eligible for market premiums and avoiding the deductions associated with dairy carcasses. Over time, this should reduce risk to feedlots and buyers, and enhance the value of these calves, creating a steady profit stream for the dairy.



UNDERSTANDING BREED AGE AVERAGE

Lindsey Worden, Executive Director, Holstein Genetic Services, Holstein Association USA, Inc.

Thousands of Holstein Association USA members take advantage of our linear classification program each year, scoring hundreds of thousands of cows across the country. Aside from the report that is left on the farm before the classifier leaves, your Association has worked through the years to develop additional reports to help you benchmark your herd and breeding program and add more value to the information that is collected.

You might not always want, or have time, to look at pages of information containing dozens of traits and hundreds of numbers for you to sort through to analyze your animals and come to a decision. The good news is – you don't have to! There is one value for each animal on the report that will allow you to compare your classified animals of all ages in a fair and standard way against each other, and the rest of the breed. That value is called Breed Age Average, abbreviated BAA%.

Breed Age Average values factor in the age of an animal and their stage of lactation at the time of classification. All classified cows receive an individual BAA value, which can be found on your herd classification report. An average of the top 90% of those values is used to assign a herd BAA for those participating in Classic and Standard classification program options.

An individual animal's BAA% is calculated by adding the cow's final score with the age adjustment factor and stage adjustment factor to get the cow's adjusted final score, then dividing that by the breed average age-adjusted final score and multiplying by 100, as shown below.

$$\text{Final score} + \text{Age adjustment factor} + \text{Stage adjustment factor} = \left(\frac{\text{Cow's adjusted score}}{80.2} \times 100 \right) = \text{BAA}$$

Chart 1

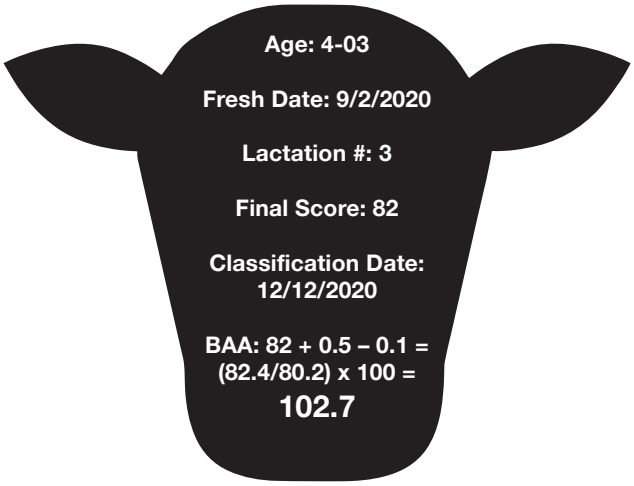
Age																			
Lactation	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	≥ 3	3	3
Months of Age	1-25	26-27	28-29	30-31	32-33	34-35	36-38	39-41	42-59	1-38	39-41	42-44	45-47	48-50	51-54	55-59	1-52	53-56	57-59
Adjustment Factor	1.1	0.8	0.6	0.4	0.2	0.0	-0.1	-0.4	-0.9	0.6	0.3	0.0	-0.2	-0.4	-0.6	-1.0	0.5	0.2	0.0

Stage of Lactation																					
Lactation	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	≥ 3	3	3	3	3	3
Months in Milk	0-1	2-3	4-5	6-7	8-10	>10	Dry	Springing	0-1	2-3	4-6	7-10	>10	Dry	Springing	0-1	2-3	4-6	7-10	>10	Dry	Springing
Adjustment Factor	2.7	2.6	2.5	2.4	2.2	2.0	2.2	1.6	0.8	0.9	1.1	1.0	0.9	1.0	0.5	-0.2	-0.1	0.0	0.0	-0.1	0.0	-0.6

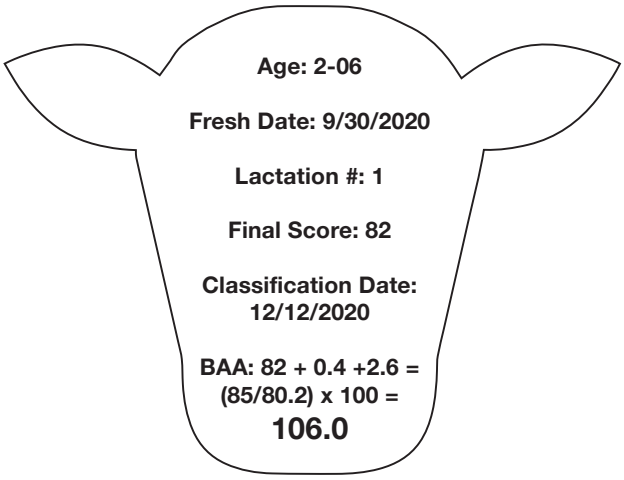
The average Age-Adjusted Final Score for the Holstein breed is 80.2 points. Age and Stage of Lactation adjustment factors are also used in calculating an animal's BAA% and can be determined using chart 1. The age of the animal is how many months old she was at time of classification and the stage of lactation is the number of months in milk.

A cow with a BAA of 100.0 is considered breed average for Final Score based on her age and stage of lactation. Below are two examples of individual cow BAAs. The final score, month of classification and month fresh is identical for both animals. Cow #1 is a third lactation while Cow #2 is a first lactation. This example demonstrates how age and lactation affect the BAA.

Cow #1:



Cow #2:



Many herds have excess females to sell. If you want to factor your cows' conformation as part of this decision, BAA is an excellent tool, as it puts cows of all ages on the same playing field. Cows who are significantly below breed average for BAA, remembering that breed average BAA is always 100, probably have problems in important areas like udder or feet and legs, that are not likely to improve with time.

Individual cow BAAs can be found on the printed classification reports you receive, as well as the Classification Linear Summary spreadsheet emailed out after your classification, for easy sorting. When "information overload" sometimes feels like a way of life, it can be helpful to look for tools that can simplify decision-making for you, and BAA is one of those tools provided through the Holstein Association USA classification program.

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SOPHISTICATED SCIENCE

Employing the latest technology yields greater genetic progress for Melarry Farms.

Spencer Hackett stands chute-side as his trusted veterinarian and embryologist, Dr. Doug Lain, begins the collection process. He is gathering oocytes from a promising donor that will develop into valuable embryos through the in-vitro fertilization (IVF) process.

It's the first step in a long-term vision for genetic improvement. "The embryo work we do today is going to be what we're hoping is in demand three years from now," Spencer says.

Located near Rice, Minnesota, Melarry Farms consists of Spencer and his wife, Stacey; two sons and their families. In addition to the herd of Registered Holsteins®, they farm around 1,000 acres of corn, soybeans and alfalfa.

"We want to keep the family farm going," Spencer says. "The embryo work is the most productive work we're doing. The genetic progress we can make has been the best return for our family farm so far."

Back at the chute, collection is complete in a matter of minutes. Dr. Lain takes the samples into the office for a closer look under the microscope.

"The key to being good is being precise, no matter how long you've done it," Dr. Lain says while looking into the lens. "The fun part is always when you put the dish on and start finding the embryos."

The results they've seen at Melarry Farms through IVF have been impressive. Over the course of the last couple of years, one cow is approaching 200 registered offspring to her name. That's how much reproductive production can increase.

These impressive results have not come from one method alone. The use of both IVF and conventional flushing, along with genomics and attention to cow families, have helped yield success. "It is still very crucial to have Registered Holsteins because cow families are where it's at," Dr. Lain explains. "Spencer, he goes on cow families when he does it, he doesn't go just on numbers."

Genetics from their cow families have made a mark on the AI industry as well, with sires such as Melarry Robust Miles-ET, Melarry Josuper Frazzled-ET, Melarry Fuel-ET, and Melarry Frazzled Future-ET coming from the Hackett's breeding program.

"I couldn't imagine taking some of these really good heifers or cows and being happy with one calf, hopefully every 13 months," Spencer says. "It's hard to pay for a really good cow just based on milk sales. Why not capitalize on her offspring and generate additional dollars there? The Registered Holstein cow has allowed me to do that."

Dr. Lain examines embryos under the microscope.

Embracing new direction

The Hacketts have been early technology adopters through the years. They started flushing back in the early 90s and have embraced new innovations along the way. Genomic testing provides the foundation and knowledge base necessary to make embryo transfer and IVF success possible.

"There's good cows all over the country, and they weren't put on this Earth just to produce milk," Spencer says. "They can reproduce, and using technology, reproduce at a higher rate."

The top 10 percent of heifers based on genomics are considered for flushing, Spencer explains, and so are heifers that have unique traits that could be emphasized in the future. "Some heifers have desirable secondary traits, so to speak, to make a product that results in a higher quality cheese or to be more friendly to the consumer," Spencer says.

Interest in A2 milk, which is considered to be easier on the digestive system for those who are lactose intolerant, has driven a lot of demand for dairy genetics in recent years. Spencer says they are focusing in on A2/A2 to try and make sure every mating has a chance of being an A2/A2 mating.

"Of course, we all want to be able to have a product that everyone can drink and enjoy the benefits of," Spencer added.

"100 percent of my success is because of the Registered Holstein cow."

— Spencer Hackett, Melarry Farms

Spencer Hackett

He credits U.S. Registered Holsteins for providing these types of opportunities.

"100 percent of my success on what we are doing here is because of the Registered Holstein cow," Spencer says. "She's got the size, capability and genetic diversity that we can make her adapt to whatever the markets want us to do."

If it's a fluid milk market, breed for pounds, Spencer explains. If selling to a creamery, then focus on higher components. It's important to work the assets you have on your own dairy, he says.

By tailoring an operation and breeding strategy based on individual farm goals, the opportunities are endless. "I'm not afraid to invest in an animal or cow family that I believe in to see if we can get a return on investment," Spencer says. "The Registered Holstein cow has made every cow better."

Merck Animal Health and Allflex Livestock Intelligence:

Transforming the Animal Health Landscape

At Merck Animal Health, we understand that as a dairy producer you face increasingly complex challenges in ensuring the health of your herd and in maximizing your operational efficiency.

As a leader in animal health, we stand ready to help you meet those challenges. We believe it is our responsibility to provide you with the tools and solutions you need to help you reach your food production goals through healthier, better-performing animals, more targeted prevention and treatment, while at the same time, meet the growing demands for transparency to earn consumer trust.

Through our recent integration of Allflex Livestock Intelligence as part of the Merck Animal Health brand, we are marrying veterinary science with animal intelligence to transform the way the livestock industry better manages animal health and performance. In fact, we are the only animal health company that engages veterinary science, animal intelligence, training and expertise to bring you an unparalleled portfolio of choices.

More Data – More Insights – Better Decisions – Healthier Animals

The integration of Allflex's innovative technologies with Merck's comprehensive animal health product portfolio provides you with the ability to collect more data to gain more accurate insights and diagnoses to improve cow and calf care and operational efficiency. This holistic approach also brings specific benefits to the dairy industry.

By taking our cues from the cows, we integrate behavior-based information and data with animal health solutions and choices to fit each operation. These insights empower you by helping to guide your decisions for the best course of action for each cow's health and well-being.

It All Starts with the Tag

Merck Animal Health is the only company that can trace an animal from birth to market. We like to say it all starts with the ear tag which uniquely identifies each cow – giving you **transparency** into that animal's electronic birth record, vaccinations, reproduction events, welfare, weight gain, medicine dosing to help you make better decisions to keep that cow healthier overall.

But it doesn't end there. We continue to advance our cow monitoring technology. At World Dairy Expo, we

announced the rollout of the Flex V2 ear tag which features a first-of-its-kind multi-function LED indicator. This new ear tag technology allows producers to more quickly identify cows that need attention based on Allflex monitoring data.

The indicator on the Flex V2 allows dairy managers, staff and veterinarians to quickly identify specific animals, even in a large group, for precision cow management. Best of all, the innovation saves the time and labor involved in searching for target cows by identification numbers.

Blinking lights can be set to different patterns, depending on the operation needs. For example, a producer could set up the device so that a slowly blinking light indicates a cow is ready to be bred, and a tag that is blinking fast may indicate she needs an animal health intervention. Best of all, a tag that is not blinking provides peace of mind, knowing the cow can be left alone to do what she does best – efficiently produce milk.

Reinventing the Future Together

At Merck Animal Health, we believe we are reinventing the future of animal health through customer-focused innovations that serve a real-world purpose while anticipating what's to come. The end game for us is helping you to gain more accurate diagnoses, more effective treatment solutions, and ultimately, healthier animals for a stronger, more successful supply chain.

Paul Koffman is the North American lead for Merck Animal Health Intelligence and directs the livestock identification, monitoring and traceability businesses in the United States and Canada. In his role, he continues the Allflex Livestock Intelligence legacy of customer focus and innovation, with the goals to improve dairy and beef productivity, profitability and animal well-being. Koffman has a 28-year career in the animal health industry, with experience in sales, marketing, distribution and technology in domestic and global markets.