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Articles at a Glance

Milking Older Cows - Why Parity Matters

In the world of dairy farming, the concept of parity—referring to the number of times a cow has calved—can be a crucial tool to optimize herd productivity. As cows age and go through multiple lactations, their productivity trends will shift, impacting their profitability to the dairy operation. Keep reading on page 2.

What Our Inoc-U-Lock™ Line of Forage Inoculants Has to Offer for Your Farm

The need to feed high quality forages is critical to a healthy bottom line for any dairy or beef producer. Research has shown that applying a high-quality inoculant to forages at the time of ensiling can in turn provide a significant return on investment for the producer. Keep reading on page 6.

Products to Always Have on Hand - Cow Toolbox

When it comes to owning dairy cows, the question is not if there will be a health challenge, but when. Most producers carry tools on hand to be prepared for a variety of potential issues. Here are a few Crystal Creek® products that are recommended for dairy producers to carry in their toolbox. Keep reading on page 9.

Introducing 17% Start To Finish™ Goat Pellets

Having high-quality pelleted feed allows producers to raise their animals without having to grow and harvest forages. With this in mind, Crystal Creek® has developed 17% Start To Finish™ Goat Pellets. Keep reading on page 10.

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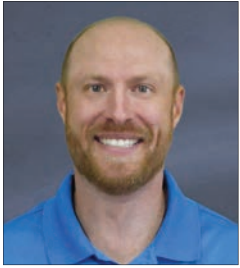
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Milking Older Cows - Why Parity Matters



By Ryan Leiterman, D.V.M.
Director of Technical Services

In the world of dairy farming, the concept of parity—referring to the number of times a cow has calved—can be a crucial tool to optimize herd productivity. As cows age and go through multiple lactations, their productivity trends will shift, impacting their profitability to the dairy operation. Research shows

that older, multiparous cows (cows that have had multiple calves) often have significant productivity advantages. This article discusses why parity matters in dairy herds and how milking older cows can boost overall herd productivity and profitability.

Think About Building a Football Team

Pretend you're a head coach and you're building a professional football team. Do you want a team made up of 11 men in their mid to upper 20's or do you want a team made up of 35% 17-year-old boys (7 adult men and 4 boys)? Seems like an obvious answer, right? The adult men are mature, stronger and more experienced. There's no doubt that they'll hit harder and run faster than the 17-year-old boys. The productivity of the younger boys on the team just cannot match that of the men.

Compare this to our dairy farms. Many dairies are milking 35% of their herd as first lactation heifers. Some herds are even milking up to 50% heifers. These heifers are not even at their mature bodyweight yet and they lack experience in the milking string. Similar to the 17-year-old boys, they are just not

Dairy cows typically reach peak milk production after their third or fourth lactation, with older cows often producing more milk than their younger counterparts.

built to compete with their stronger, more mature counterparts, and we see that in their reduced productivity. If your herd is not in a growth mode and your first calf heifers make up more than 35% of your total herd, it is time to ask yourself why.

Why Older Cows are an Asset

From an economic standpoint, we know that these older cows are generating greater economic returns than younger cows if their daily milk output conforms to typical expectations. Dairy cows typically reach peak milk production after their third or fourth lactation, with older cows often producing more milk than their younger counterparts. Cow longevity is the second most economically important trait in dairy cows, with milk yield being the most important trait.

As an industry, we expect our second lactation animals to produce around 10 lbs. more milk/cow/day than first calf heifers. We also expect our third and greater lactation cows to produce around 10 lbs. more milk/cow/day than second lactation cows.

Multiparous cows, especially those in their fourth or fifth lactation, have more developed udder tissue and better milk letdown, which can translate into higher yields per milking session. Furthermore,



older cows are often better adapted to the specific conditions of the farm, such as milking schedules and environmental stressors, allowing them to maintain their productivity at a more stable rate. Managing this subset of the herd efficiently can lead to better milk yields per cow and reduced replacement costs. While a farm with good cow longevity is not guaranteed to be profitable, a farm with short longevity due to a high involuntary culling is not likely to be profitable.

Older Cows Do Come with Problems

The focus on younger cows often arises because they have fewer health complications early in life and are generally regarded as genetically superior to the older cows.

Although older cows can be more productive, they are also more susceptible to certain diseases. Some older cows are involuntarily lost during the first two months of lactation, with many being lost due to poor transitions, lameness, mastitis and reproductive issues. These diseases can significantly affect milk yield and overall productivity if not managed appropriately. For instance, mastitis can reduce a cow's milk production by hundreds of pounds over the course of a lactation. Subclinical diseases like ketosis can also take a heavy toll on herd productivity, often going unnoticed until milk yields drop significantly.

To keep older cows healthy and productive, a robust herd health management program is essential. Regular monitoring for early signs of disease, effective nutrition management, and

prompt veterinary intervention are crucial. Nutrition is a key component of increased productive life in dairy herds. Dairy rations that focus on energy from forages, as opposed to high starch levels, will promote increased rumen health and lead to improved longevity and performance. It also helps prevent metabolic diseases, reproductive disturbances, and lameness, which are the top three reasons to cull multiparous cows.

Save on Heifer Rearing Costs and Even Sell Some Heifers

By keeping older cows productive, dairy farmers reduce the number of replacements needed, thus saving on rearing costs. It also allows the dairy farm to write the cost of rearing that heifer off over a longer productive lifetime. The cost of raising replacement heifers, which includes feeding, housing, and veterinary care, often exceeds \$2,500 per heifer.

Given the current state of the dairy industry, having heifers on hand to sell is economically advantageous and allows the dairy to create another income stream from the commercialization of these extra heifers.

Little Progress Has Been Made

Research published by the United States National Institute of Health in 2018 found that since 1960, New Zealand was the only country in which the length of productive life of dairy cows has increased

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Milking Older Cows - Why Parity Matters

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over time. The United States and most European countries have had no change to the length of the productive life of dairy cows since 1960.

The case for extending the productive lifespan of dairy cows is strong, however, little progress has been made by our industry. Why?

It's likely a complicated, multifactorial issue that involves:

1. Our industry's general obsession with high milk production. This obsession, shared by many producers and bankers alike, leads to an industry that creates lactating diets that are formulated to increase milk production at the expense of cow health.
2. A focus on creating genetically superior heifers with the breeding and genetic testing technologies available today.
 - a. But, one must ask the question "What is the point of making a heifer with amazing production potential, if she never gets to see a fourth or fifth lactation and express all that potential?"
3. A longstanding history of cheap and plentiful replacement heifers within our industry. Perhaps the current heifer shortage and

their high price will help naturally promote increased productive life and longevity.

More Work Still Needs to Be Done

As an industry, we need to continue working on increasing the productive life of our cows. Older cows produce more milk and do so at a lower cost compared to heifers entering their first lactation. By maintaining older cows, dairy farms can spread the fixed costs of raising heifers over a longer productive lifespan, improving overall herd profitability.

Moreover, reducing involuntary culling due to health problems helps to stabilize herd size and milk production levels, offering more consistent returns from milk sales. In the 2018 Crystal Creek® article "*Improving Longevity in Your Dairy Herd*" you can read more about how to increase the parity in your herd. Crystal Creek® can help you establish a nutrition program for your herd to help you extend the productive life of your cows, reduce replacement costs, and ultimately increase your profitability.

References available upon request.



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- 4-9 boxes: \$18/box discount** (\$10/box discount + \$8 per box existing volume discount)
- 10+ boxes: \$23/box discount** (\$10/box discount + \$13 per box existing volume discount)
- Pail: \$2/pail discount**

HEIFER PRIDE™ \$10/bag discount & \$2/pail discount



JAM PROMOTION

May 2025

Receive a **FREE Jar of Jam** or **4 oz. Udder Fancy™** for every \$150 of product purchased. Limit 5 per order.



FLY REPELLENT
\$5 per gallon discount
 (4 gallons or more)
\$2 per gallon discount
 (2-3 gallons)
Normal Volume Discounts Do Not Apply

June 2025

CRYSTAL ADVANTAGE® EQUINE FLY REPELLENT

Concentrate: \$4 per bottle discount
Ready-To-Use: \$2 per bottle discount



July 2025

Save 10% on all
HabiStat™/Sanitation Products
HABISTAT™ LIQUID, HABISTAT™ TABLET,
CHLOR-A-FOAM DETERGENT,
FOAMASTER CLEANING GUN



August 2025

VETERINARY DAIRY LINIMENT™
 Save 10% IN ADDITION TO Normal Volume Discounts



What Our Inoc-U-Lock™ Line of Forage Inoculants Has to Offer for Your Farm



By Carley Ciolkosz, B.S.
Livestock Nutritionist

One of the main goals on farms is for profitable livestock, and the foundation that profitable livestock rely on is feeding high quality forages. The need to feed high quality forages is critical to a healthy bottom line for any dairy or beef producer. Research has shown that applying a high-quality

inoculant to forages at the time of ensiling can in turn provide a significant return on investment for the producer. There are many benefits to a well-designed inoculant program including speeding up fermentation which leads to reducing dry matter loss, reducing protein degradation and energy loss, stabilizing face quality, improving bunk shelf life, enhanced dry matter intake and improved forage digestibility. Crystal Creek® believes that our line of Inoc-U-Lock™ forage inoculants will help producers reach these goals on their farms.

Crystal Creek's® Inoc-U-Lock™ lineup features four different inoculants each designed to best suit each

feedstuff. Inoc-U-Lock™ is a scientific, proprietary blend of beneficial bacteria and sugar releasing enzymes that each function in specific pH ranges, for a more controlled and reliable fermentation process. Inoc-U-Lock™ utilizes both bacteria and enzymes to help start, control, finish and stabilize the fermentation process. The synergistic bacteria and enzyme formula provides a controlled and efficient fermentation process resulting in higher quality feeds and increased production. Using Inoc-U-Lock™ on feedstuffs can reduce dry matter loss by up to 4%.

A farm's feed waste or loss is commonly referred to as shrink. Shrink can have a significant impact on feed quality, quantity, and profit. Crystal Creek® inoculants all contain five strains of bacteria to aid in the fermentation process along with aerobic stability. These five strains work together: The first strain starts the fermentation process at the pH of seven and starts lowering that pH, and once the first strain is done the second strain kicks in to continue to lower that pH. Then the third and fourth strains kick in finishing that fermentation process while continuing to lower that pH, and then the fifth and final strain stabilizes and preserves the pH ending that fermentation process at the desirable pH of four. Along with the five strains of bacteria, these inoculants also contain four types of enzymes that release water soluble carbohydrates(sugars) from the plant. These sugars are food for the fermentation bacteria. Our four Inoc-u-lock™ products are Inoc-U-Lock™ Buchneri, Inoc-U-Lock™ Dry, Inoc-U-Lock™ Water Soluble(WS), and Inoc-U-Lock™ Baled Hay(BH).

Inoc-U-Lock™ Buchneri is a full spectrum water soluble inoculant designed to protect corn silage and high moisture grains as well as enhancing the fermentation performance. It reduces dry matter loss, helping with extending bunk life for improved dry matter intake and stabilizing the storage face quality of the ensiled forage. This inoculant contains an extra strain of bacteria, Lactobacillus Buchneri, in addition to the other five strains of bacteria. This strain specifically helps with protecting the face of

Figure 1 FEATURES OF INOC-U-LOCK™:

Higher Quality Feed

- Reduced Dry Matter Loss
- Reduced Protein Loss
- Reduced Mycotoxin Risk

Better Silo Face Quality

- Less Waste
- Increased Aerobic Stability

Longer Bunk Life

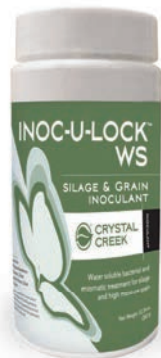
- Less Heating in Bunk
- Increased Dry Matter Intake

Meets NOP Standards

Dry and Liquid Application

Economical to Use

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Application Rates and Treatment Cost/Ton for Inoc-U-Lock™ Products

INOC-U-LOCK™ BUCHNERI		
Crop	Corn & Sorghum Silage	High Moisture Corn
350 gram Foil Packet	Treats 200 tons	Treats 100 tons
INOC-U-LOCK™ Bacteria CFUs Per Gram Of Crop	100,000 CFUs/gram	200,000 CFUs/gram
PLUS L. Buchneri Bacteria	PLUS 100,000 CFUs/gram	PLUS 200,000 CFUs/gram
Treatment Cost/Ton	\$1.48/ton	\$2.95/ton

INOC-U-LOCK™ WS (Water Soluble)			
Crop	Corn & Sorghum Silage	Grass or Legume Haylage & Small Grain Silage	High Moisture Corn
350 gram Jar	Treats 200 tons	Treats 100 tons	Treats 66 tons
Bacteria CFUs Per Gram Of Crop	100,000 CFUs/gram	200,000 CFUs/gram	300,000 CFUs/gram
Treatment Cost/Ton	\$0.69	\$1.39	\$2.10

INOC-U-LOCK™ BH (For Baled Hay)			
Tons Per Jar	20 tons	13 tons	10 tons
Grams Per Ton of Baled Hay	20 gm	30 gm	40 gm
% Moisture of Baled Hay	<18%	18-20%	20-22%
Bacteria CFUs Per Gram Of Baled Hay	210,000 CFUs/gram	315,000 CFUs/gram	420,000 CFUs/gram
Treatment Cost/Ton	\$4.30	\$6.61	\$8.60

INOC-U-LOCK™ DRY			
Crop	Corn & Sorghum Silage	Grass or Legume Haylage & Small Grain Silage	High Moisture Corn
25 lb. Bag	Treats 100 tons	Treats 50 tons	Treats 33.3 tons
Bacteria CFUs Per Gram Of Crop	100,000 CFUs/gram	200,000 CFUs/gram	300,000 CFUs/gram
Treatment Cost/Ton	\$0.69	\$1.37	\$2.06

INOC-U-LOCK™

(CONTINUED FROM PAGE 6)

the feed from mold and mycotoxins and keeping that face fresh. Inoc-U-Lock™ Buchneri can be used on corn and sorghum silage, and on high moisture corn.

Inoc-U-Lock™ Dry is a dry bacterial and enzymatic treatment for the enhanced fermentation of silage and high moisture grains. With this product you do not need to mix it with water for application. Inoc-U-Lock™ Dry can be incorporated into corn silage, sorghum silage, grass/legume silage, small grain silage, and high moisture corn.

Inoc-U-Lock™ WS is a water soluble bacterial and enzymatic treatment for the enhanced fermentation of silages and high moisture grains. This inoculant is cost effective and easy to use. It is mixed with water according to the applicator directions and can be used on corn silage, sorghum silage, grass/legume haylage, small grain silage, and high moisture corn.

Inoc-U-Lock™ BH is a water soluble bacterial and enzymatic treatment for the stabilization of baled hay during the final dry down period. It does not ferment but instead slows down decay and stabilizes the hay until the drying process is done. Apply this product to laying hay before baling at 12-18% moisture to prevent mold formation. Inoc-U-Lock™ BH lengthens the harvesting window, is not corrosive to equipment, and is environmentally safe to handle. Some additional tips for storing baled hay

Figure 2 BENEFITS OF INOC-U-LOCK™ 1

Increased Voluntary Dry Matter Intake

- Better/more Consistent Rumen Function

- Improved Herd

Reproduction Health

- Less Metabolic Disease Expense

Reduced Feed Costs

- Less Feed Waste

Increased Milk Production

Increased Milk Components

Increased Profitability

when this product is applied include leaving plenty of space between bale rows to allow baled hay to breathe and complete the drying process, and protecting the bales from the weather will help the drying process as long as air flow is not restricted.

The Inoc-U-Lock™ line of inoculants are excellent high performance products and offer great value. They are also formulated to be allowed for organic use. Protect your hard work, investment and bottom-line by applying Inoc-U-Lock™ to your feedstuffs.

References available upon request.



Products to Always Have on Hand - Cow Toolbox



By Alex Austin, B.S.

When it comes to owning dairy cows, the question is not if there will be a health challenge, but when. Most producers carry tools on hand to be prepared for a variety of potential issues, from milk fever to mastitis. Some common tools are bottles of calcium, vet wrap, syringes, etc. This article lists

a few Crystal Creek® products that are recommended for dairy producers to carry in their toolbox.

Veterinary Dairy Liniment™

Crystal Creek® Veterinary Dairy Liniment™ is available in both a rub-on cream and spray. It can be used to address inflammation, particularly in the udder. Veterinary Dairy Liniment™ uses contrast therapy to help reduce swelling. The natural wintergreen in this liniment initially warms the tissue increasing circulation and blood flow, while the menthol and camphor components cool and assist the lymphatic system with drainage, providing relief and comfort. The lymphatic system keeps tissue healthy by bringing white blood cells to the area to fight off potential infections. The additional natural plant oils in the liniment contain proven antimicrobial and anti-inflammatory properties. Being proactive and treating signs of any heating or swelling immediately can help prevent future chronic problems.

Fresh-N-Easy™

Using oral calcium supplementation is a practical approach to preventing both milk fever (clinical hypocalcemia) and subclinical hypocalcemia. The Fresh-N-Easy™ boluses are an easy-to-use calcium supplement to have on hand. The smaller size makes for flexible and easy dosing. One producer's feedback:

"It's so much easier to give these boluses rather than the giant calcium boluses other companies offer. I also like that I can use more or less depending on the size of the cow and how much she needs."

Cows with subclinical hypocalcemia can be a huge expense to operations, as they do not show clinical symptoms. Research has shown, 50% of mature

dairy cows and 25% of first calf heifers experienced subclinical hypocalcemia. Identifying the higher risk cows and providing an oral calcium supplement can decrease the risk of developing clinical hypocalcemia and decreased production. Cows that are at a higher risk have experienced lameness or fluctuating body condition during the dry period, had a history of milk fever, high production during the previous lactation, and/or have had three or more lactations. Other events such as twins or retained placenta also increase the risk.

Super Boost™

The factors that can cause a cow to develop hypocalcemia can also contribute to cows developing clinical or subclinical ketosis. Pairing Super Boost™ with an oral calcium supplement can help prevent this metabolic disease from taking hold. Subclinical ketosis is more prevalent than many realize, with an average of 28.9% of cows developing it by five days postpartum. Super Boost™ delivers two essential nutrients, choline and niacin, that can help a cow during the transition period. During this period, cows dry matter intake is still increasing, but often not fast enough to meet the high energy needs of milk production as well as recovery from birth. The body will then rely heavily on the liver to process body fat quickly to deliver energy. Choline aids in this process, helping the liver to process fat and reducing chances of fatty liver. Niacin is a B vitamin that helps metabolize carbohydrates, fats and proteins in the rumen. This helps to increase dry matter intake and helps reduce body fat utilization.

Many producers may not realize how prevalent these diseases are and the economic cost it can have on their operation. A case of subclinical hypocalcemia can cost \$150 to \$226.46, subclinical ketosis can range from \$129 to \$289, and mastitis can be \$128 to \$444. Identifying these higher risk cows and taking fast steps to treat and prevent further complications are key to a profitable operation and a healthy herd. Keeping these Crystal Creek® tools on hand will help any producer be prepared when the time comes. The staff at Crystal Creek® is here to help. Please feel free to contact us with any challenges or questions.

References available upon request.

CRYSTAL CREEK® Introducing 17% Start To Finish™ Goat Pellets



By Darren Zimmerman, D.V.M.

More and more goat producers are raising animals with little to no land base. Hence they rely on purchased feedstuffs more than homegrown forages. Having high-quality pelleted feed allows these producers to raise their animals without having

to grow and harvest forages which has some inherent efficiencies as well.

With this in mind, Crystal Creek® has developed 17% Start To Finish™ Goat Pellets.

Crystal Creek® began by focusing on the needs or requirements of the kids while still on milk. The goal was a solid starter grain that provided plenty of nutrition. While doing this, we wanted to have digestible fiber in the ration to help develop the rumen. A 17% crude protein pellet may seem a bit low for a starter grain for kids, however, we selected a balance of quality proteins that are digestible and easily absorbed. By selecting high quality protein, we were able to meet amino acid requirements without a higher crude protein.

Crystal Creek® put extensive time into the formulation of this pellet and it meets/exceeds the nutritional requirements for all stages of growth from pre-weaned phase to finishing. This pellet is very versatile and can

be used for the growth and production of not only the meat animals, but can also be used to raise doelings. Figure 1 shows an average feeding rate based on weight of the animal. A Crystal Creek® nutritionist can formulate the ration to see how the 17% Start To Finish™ pellets can fit into almost any goat diet.

Goat diets call for a high-quality grass hay. A high-quality grass hay is defined as having a Crude Protein (CP) of 8-10%, but the higher the better. The Neutral Detergent Fiber (NDF) should target 50% or higher, for Neutral Detergent Fiber Digested (NDFD) 12 and 30, the target is 55 and 65 or higher, respectively. The Relative Feed Value (RFV) values should be 100-120 and Relative Feed Quality (RFQ) values should be 150-160.

Figure 2 High Quality Grass Hay Value:	
CP	8-10%
NDF	50% or higher
NDFD 12	55
NDFD 30	65
RFV	100-120
RFQ	150-160

Ways to use the 17% Start To Finish™ Goat Pellets include:

- As a starter grain for all kids on milk.
- Solely or in combination with a high-quality hay for growing and finishing meat goats. 17% Start to Finish™ Goat Pellets is a pelleted feed to take your bucklings from milk to finish. It is formulated to complement the milk diet before weaning. We recommend weaning between 8 and 12 weeks of age. This complete pellet can be offered as soon as 2-3 weeks of age. The amount can be increased as they eat it all. Our goal is 3-5% of their body weight. The pellet provides complete nutrition when fed at 3-5% of body weight after weaning.
- Solely or in combination with a high-quality hay for growing doelings. We would recommend using

Figure 1 17% START TO FINISH™ GOAT AS

Animal Weight	Feeding Rate
Kid - 10 lb	0.3 lb - .5 lb/h/d
Kid - 20 lb	.5 lb - 1 lb/h/d
Kid - 30 lb	1lb - 1.5 lb/h/d
Doeling - 70 lb	2 lb - 3.5 lb/h/d
Nanny - 145 lb	4.5 lb - 7.25 lb/h/d
Meat Goat Finish 60 lb	2.50 lb - 4.25 lb/h/d

it as a starter grain while on milk. Again, weaning at 8-12 weeks. The pellet should take the doelings to pasture or a hay diet. Please make sure you are offering 3-5% of body weight for the doelings as you transition them off milk and on to your other feeds. Here again, a high-quality grass hay is a great transition choice. For some of the bigger goat dairies, the pellet can take you to your transition to fermented feeds.

- Nanny goats can also benefit from the 17% Start to Finish™ Goat Pellets, as a boost to supplement energy while nursing.

The protein in the pellet is highly digestible, and the energy is provided by a balance of sources to prevent acidosis. The fiber included is digestible and usable. As always, we topped it off with the highest quality vitamins and minerals.

Ammonium Chloride was added to reduce the chance of bladder stones and urinary blockages.

17% Start to Finish™ Goat Pellets is medicated with Decoquinatate, a medication proven to be effective in the control of coccidia in goats. Please note that the pellet cannot be used in dairy goats where

milk is intended for human consumption. This pellet is not recommended for use in sheep. If you have any questions about the 17% Start To Finish™ Goat Pellet, please contact Crystal Creek® at 888-376-6777 to speak to one of our nutritionists.

References available upon request.



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