



A Closer Look:
5 Years Later at
Ohio Dairies
Page 2 - 3



ParlorPro:
Page 4-5



iPrep

Understanding Liner
Compression:
Page 6-7



Marginal OP

Optimum OP

Shows:
Where to see us!
Page 8



The Green Liner File

Promoting healthy dairy products and practices.

Milking System or Management System

The nice thing about working with dairymen is that they think both short and long term at the same time. Every good business has to do just that to effectively manage product prices, technology, manpower and equipment. Milk price and the cost of commodities are daily discussion topics, but cows still need to be bred, fed and milked every day. One thing every producer knows is that so many things need to be done today, tomorrow, and next month, and they all have a different level of management required for it to happen correctly.

Lauren AgriSystems has worked hard researching and developing products to make management easier on a dairy. We continue to focus on the parlor, starting at where the system and the cow meet...the liner. Our products have expanded to include hoses, shells, pulsation enhancers, flooring, and others. More recently we have developed ParlorPro™ to monitor, track and help manage parlor systems and settings to make sure everything is functioning properly long term. As we expand our

product offerings in the future, we will continue to make new products that will help keep cows and dairymen happy.

Inside this issue are several interviews with long-term Lauren AgriSystems' customers. When I read through these interviews, it was clear to me that using the correct liner and systems settings can have a major impact on a dairy. It is great to hear how these producers have come to appreciate the consistency and predictability of our products.

Also inside is more information on ParlorPro™. This is a unique product in the industry that can allow a manager to focus on the right information to manage with. ParlorPro™ can be used by a dairyman or other resources such as a vet or consultant to monitor, track, and manage pulsation, cow prep, teat end health and other important items on a dairy.

Lastly, we have included a research article on Liner Compression. In the past few years, the understanding of liner

compression has improved a great deal. As the importance of the correct liner compression become more apparent, it also explains why the Lauren Liner has provided dairymen with unmatched teat end health in a commercially viable setting.

Most people think of Lauren AgriSystems as a liner company. With the addition of newly designed products and support services, the liner becomes one component in a management system. As you read our newsletter, I would ask you to think about how Lauren AgriSystems can help you manage your business.

Sincerely,

President, Lauren AgriSystems



A Closer Look: 5 Years Later for Ohio Dairies

Hi Hills Farm, Glenmont, OH - 575 cows, Double 10

Recently, we sat down with Tim Stitzlein, owner of Hi Hills Farm, to discuss his thoughts as he approaches 5 years on the Lauren Tri-Circle® Liner. Tim's decision to switch to the Green Liner was due in part because of the expectations it was sold on. Tim was looking for a liner that would have less slippage, fewer re-attachments, faster milkouts, lower SCC and mastitis, as well as improve teat ends. Sounds like a daunting task, but as Tim says, "yes, the liner has met the expectations that it was sold on. I had tried every liner there was, they all would improve on one thing, but not all things. I would tell the route guys that I wanted to milk faster, so they would say to try this liner, and that liner would allow me to milk faster but my teat ends would be bad. Weeks later when the truck came back, I would say I want to improve my teat ends and again the route guy would say to try this liner, which was a different liner altogether. It would improve teat ends, but I would now be back to slower milking, never getting a liner that could do more than one thing." With the Green Liner, Tim has seen his teat ends improve, less slippage, less re-attachments, and faster milkouts.



Faster milkouts was the first thing that Tim noticed when starting on the Green Liner, going from 4.2/4.5 turns an hour to 5.2 turns an hour. The other performance characteristics soon followed. Tim also took the opportunity to attend one of Lauren

AgriSystems' Dairy Schools, where he heard a presentation by Steve Spencer, Professor Emeritus Penn State, and although never afraid of higher vacuum, it helped Tim to truly understand how vacuum and the liner perform together.

How it maintains that performance throughout its entire life cycle from start to finish was evident. "It doesn't start out slow nor does it taper off towards the end like most other liners," Tim said. Tim also felt Lauren AgriSystems "is a company that is more aggressive and will work with you, when other companies do not. A competitor's sales rep even mentioned that Lauren has woke up the industry." When asked what advice he would offer to other dairymen who are considering a change to Lauren Tri-Circle® Liners, Tim simply said "Try them, changes will need to be made, like hoses and system settings, but try them!"



Jo-Jan Holsteins, Danville, OH - 390 cows, Double 9

In continuing to look at dairies that are approaching 5 years on the Lauren Tri-Circle® Liners, we met with Henry Wilson of Jo-Jan Holsteins. They went on the Green Liner in early 2005, looking to eliminate squawks and improve teat ends. "Squawks were eliminated and within 45 days teats were improved," said Henry. Over the years Jo-Jan has been a Gold Award winner with their milk processor as they have been under 175,000 SCC for their yearly average, with this year's SCC average being at 140,000. For Henry, his dad John, and his brother Joe, the liner has definitely met the expectations that they had counted on. "The faster milking it provided eliminated the need to build a new parlor as we were able to accommodate the number of cows."

Henry also mentioned, "It was great to be able to trust a liner that it is going to do what it is supposed to, helps with not having to watch the employees as much, because you can count on the liner." It was Jo-Jan's first time using a vented liner, which they have come to really like, especially the aspect of helping the milk get away from teat ends, and not build up in



Idyl Wild Farms, Loudonville, OH - 700 cows, Double 10 and Double 7

Five years ago, Paul Weber, owner of Idyl Wild Farms, went looking for help for his teat ends. He tagged along with a nutritionist who took him to a dairy that was experiencing some really good things with regards to teat health. That dairy was using the Lauren Liner, and as they say, the rest is history. Idyl Wild Farms has been using the Green Liner ever since and their teats are great - even the last score coming out of an Ohio winter had 90% 1s and 2s.



Paul reflected back on conventional rubber liners and how he hated to change them so often, but worse was how his teat ends looked. "With the Lauren Liner the first thing I noticed was teat end improvements and we could also milk faster, we could be more aggressive with getting the cows milked out," said Paul. "I am sold on the service as well, it is tremendous, they are more service-oriented and not afraid to solve problems for you. That makes them different from the other companies."



Paul mentioned that at first there was a big learning curve when it came to vacuum, pulsation, and looking at different components within the milking unit. "My perception of higher vacuum before was that it pulled out teat ends and caused poor teat ends. Now with the right settings and liner, teat ends are great! I also don't recall using a vented liner before. I like the fact that it helps with milk flow and always stays open and doesn't clog."

When asked what advice he would offer to other dairymen who are considering a change to Lauren Tri-Circle® Liners, Paul simply said, "Follow the manufacturing guidelines; not all companies have guidelines, but Lauren's will work for you, especially for teat ends and fast milking."

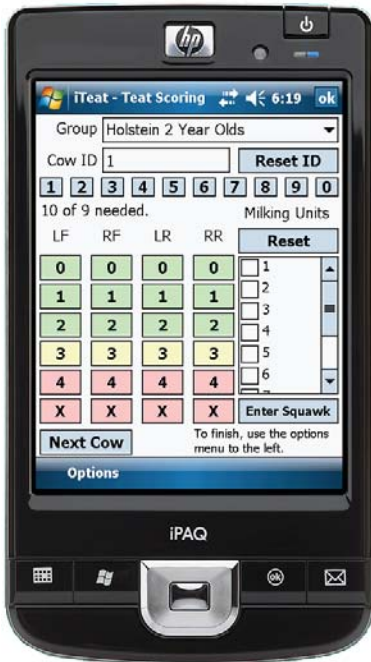


the claw. For Henry, Lauren has been more than a company who simply "drops off a product to try. We have learned a lot, especially about what to look for in teats, and assistance is always there if needed."

A plus according to the Wilsons is being able to utilize higher vacuum, which helps with fast milking, while improving teat ends at the same time. "No need to change to another liner, I am happy with these," said Henry. When asked what advice he would offer to other dairymen who are considering a change to Lauren Tri-Circle® Liners, Henry says "Adjust your vacuum and pulsation and you'll like milking faster with good teat ends."

ParlorPro™ by Lauren AgriSystems was designed for dairy professionals by dairy professionals. With the success to the National Teat Health Database, Lauren AgriSystems saw the need to have a resource available that not only manages information collected on dairies, but also provides benchmarking and analysis tools for professionals who are serious about improving the current state of dairy technology. An online database providing professional reporting, data management, and comparative analysis would facilitate communication in the industry.

The website, www.parlorpro.com, features an easy-to-use interface for entering (or uploading) and managing information for a user representing one dairy or multiple dairies. A real advantage to using ParlorPro™ is the ability to collect information on a handheld computer while on the dairy. The information collected on the handheld is then uploaded to the database in one easy step. This eliminates countless hours of transferring information from paper to the computer along with the headaches associated with keeping track of all the paperwork. Real-time analysis is also available on the handheld; dairymen can now have their results in minutes instead of days.



iTeat

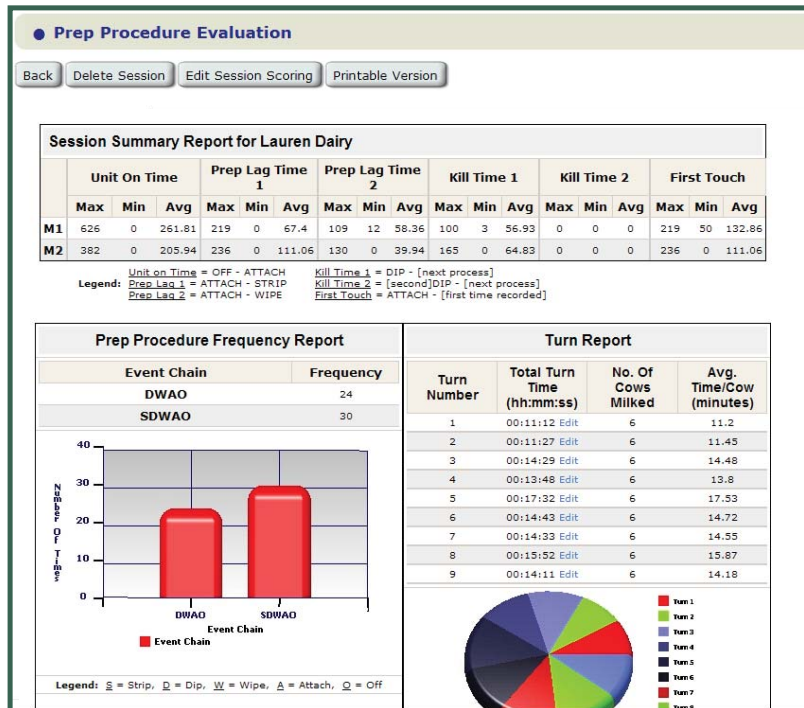
This was the first handheld application in the ParlorPro™ family. The need for a tool that eliminated wasted time reentering information in the computer and preparing graphs was the motivation behind the design of this application. Additionally, with more people teat scoring now than ever before, there was an opportunity to eliminate some of the subjectivity of teat scoring and to solidify results by applying a few statistical rules. Now, ParlorPro™ users can be confident their results match other ParlorPro™ user results due to the adoption of industry standards within the programs framework. For this application, teat scores are collected on the handheld and then downloaded to the database. Once downloaded, the teat scores are automatically compiled into a report that is ready for presentation.

Squawk Counter

This application runs along with *iTeat*. Users, if they choose to, are able to count audible squawks while in the parlor teat scoring. It is as simple as a one-button application can get. If you hear a squawk, press the button. A running count is stored on the handheld and downloaded to the database. After downloading, the information that was collected is compiled into an easy-to-understand report and ready for presentation to the dairyman.

iPrep

The high demand for a tool that minimizes the time spent calculating results for prep procedure analysis led to the programming of this application. This application allows the user to enter the observed milking procedure for one or multiple milkers while providing instant results. The handheld provides the user with average, maximum, and minimum times for key events during milking such as: turn time, prep lag time, kill time, and unit on time. Once downloaded to the database, graphs are automatically created and the information is displayed so that current state and trends can be determined. Not only is time saved reentering data, the calculations are done immediately and the results are instantly available for review





Pulsators



Squawks



Calendar



Forum



PDA



Admin

Parlor Audits

This application allows the user to document the current state of the parlor by entering information onto the handheld when visiting a dairy. This information is useful in tracking changes in system settings, products, and performance. Like the other handheld applications, the audits are downloaded to the database and made available in a finished report.

| Parlor Information | | | |
|----------------------------------|-----------------------------------|-----------------------------------|---------------------------------------|
| Cow Breed* | # Of Milking Cows* | # Of Milking Units* | Milking Frequency* |
| Jersey | 126 | 20 | 2 |
| Parlor Type* | Current Liner* | Barrel Shape of Current Liner* | Are Current Liners Vented?* |
| Herringbone | LAUREN | Tri-Circle | Yes |
| Grates in Parlor* | Claw Brand* | Claw Type* | Is Claw Vented?* |
| Yes | Delaval | TOPUNLOAD | Yes |
| Pulsator Brand* | Detacher Brand | | |
| BOUMATICLOWFLOW | germania | | |
| System Specifications | | | |
| System Vacuum - in/Hg* | Average Peak Flow Vacuum - in/Hg* | Washhose ID - inches* | Washhose Length - inches* |
| 14.3 | 12.5 | 5/8 | 66 |
| Milkhose ID - inches* | Milkhose Length - inches* | Secondary Milkhose ID - inches* | Secondary Milkhose Length - inches* |
| 5/8 | 60 | 5/8 | 40 |
| Twin Tube ID - inches* | Twin Tube Length - inches* | Additional Twin tube ID - inches* | Additional Twin Tube Length - inches* |
| 9/32 | 66 | | 0 |
| Detacher Setting(flow) - lbs/min | Detacher Delay Setting - sec. | Pulsator Rate * | |
| 1.2 | 4 | 0 | |

Pulsator Analysis

Pulsation is a key component in the milking system and the force which drives the interaction between your cows and the milking machine. So it's important to have the ability to recognize when your pulsation system is running correctly or when improvements need to be made. ParlorPro™ has created a spreadsheet that allows the user to easily identify where a pulsation system stands overall, and where each pulsator is performing within it. Pulsation recordings can be manually entered or uploaded from certain devices to the spreadsheet. Malfunctioning pulsators are then flagged which makes them easily identifiable and simplifies the process of diagnosing a pulsation system. The tedious work of looking over individual pulsator recordings one at a time and the uncertainty of which pulsators are good or bad is virtually eliminated.

| Pulsator Info | | | | | | | | | | | | |
|--|----------------|--------|--------|-------|-------|-----|----------------|-----|-----|-----|-------------------|-----|
| View Pulsator Data | | | | | | | | | | | Add Pulsator Data | |
| <p>This page displays every station entry for the selected date on the overview page as well as the average results. If there is an error in the data, click the "Add/Modify Data" button located at the bottom of the "Station Results" Section. This will take you to a page where you can add new stations, delete stations, or edit data for each station.</p> | | | | | | | | | | | | |
| Printable Version | | | | | | | | | | | | |
| Average Results For Lauren Dairy On 6/24/2009 | | | | | | | | | | | | |
| A | B | C | D | Ratio | | | | | | | | |
| 155.19 | 487.52 | 175.54 | 185.06 | 64.27 | 36.06 | | | | | | | |
| Station Results | | | | | | | | | | | | |
| Station | Side #1 Phases | | | | Ratio | | Side #2 Phases | | | | Ratio | |
| | A | B | C | D | A+B | C+D | A | B | C | D | A+B | C+D |
| Stall: 1A | 153 | 489 | 165 | 192 | 642 | 357 | 155 | 489 | 168 | 190 | 644 | 358 |
| Stall: 2A | 105 | 548 | 169 | 181 | 653 | 350 | 147 | 507 | 176 | 171 | 654 | 347 |
| Stall: 3A | 154 | 492 | 161 | 195 | 646 | 356 | 167 | 476 | 170 | 187 | 643 | 357 |
| Stall: 4A | 170 | 488 | 178 | 167 | 658 | 345 | 165 | 490 | 184 | 162 | 655 | 346 |
| Stall: 5A | 165 | 482 | 139 | 218 | 647 | 357 | 163 | 440 | 178 | 186 | 603 | 364 |
| Stall: 6A | 159 | 488 | 179 | 175 | 647 | 354 | 158 | 488 | 177 | 178 | 646 | 355 |
| Stall: 7A | 141 | 510 | 167 | 186 | 651 | 353 | 150 | 504 | 208 | 146 | 654 | 354 |
| Stall: 8A | 153 | 507 | 170 | 169 | 660 | 339 | 150 | 495 | 176 | 180 | 645 | 356 |

Contact your consultant or veterinarian today to see if they have ParlorPro™. For more information on ParlorPro™ please contact Lauren AgriSystems at 330-339-3373.

ParlorPro™ Quick Facts

iTeat

- Teat scores can be entered into the handheld, uploaded to the database; eliminates hours of typing scores into the computer
- Graphs are automatically created for each dairy
- Benchmarking and comparing options
- Real-time results can be shared with the dairyman
- Previous scores can be manually entered or uploaded to the database

Squawk Counter

- Runs simultaneously with iTeat
- Simple one-button application
- Information easily uploaded from the handheld to the database

iPrep

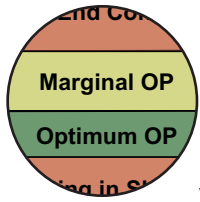
- Minimizes time spent calculating prep procedures
- Can be used for multiple milkers
- Provides instant results
- Easily uploaded with graphs automatically created.

Parlor Audits

- Easy to upload or manually enter into the database
- Eliminates the need for managing paperwork
- Useful in tracking changes to the system
- Ability to compare dairies

Pulsator Analysis

- Easy to upload or manually enter into the database
- Organized data in an easy-to-read format
- Automatic analysis performed which will identify areas of concern and malfunctioning equipment



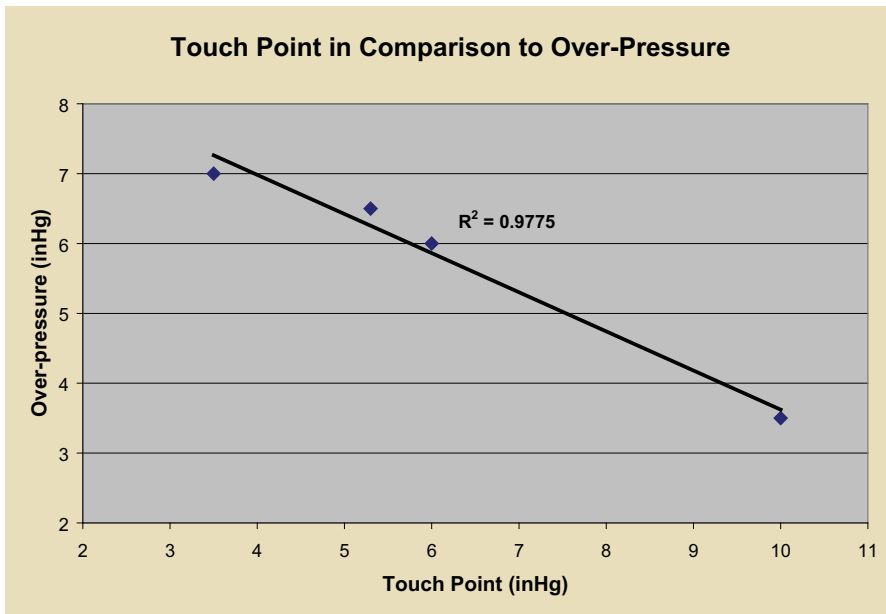
Understanding Liner Compression

When you are involved with liners the topic of Liner Compression comes about. How much compression do we need? Can I just take my system vacuum and subtract the Touch Point of the liner to figure the liner compression? Which theory is correct: Over-Pressure or Residual Vacuum available for Massage? The most common mistakes made while trying to understand liner compression are with the definitions or preconceived ideas. **Liner compression in its simplest form is the force exerted on a teat by a liner through the pulsation cycle.**

Pulsation is defined as the cyclic opening and closing of the liner in ISO 3918-2007, or in other words - **pulsation is Liner Wall Movement (LWM)**. The liner walls move as a result of the pressure change in the pulsation chamber, and this movement is what applies the force on the teat during milking. Other dynamics that affect LWM are vacuum levels, liner barrel shape, wall thickness, and durometer. It is a combination of these factors that determine the liner compression on the teat.

Liner Compression begins when the liner comes into contact with the teat during liner closure. The pressure applied at the beginning of liner closure is normally minimal, but can be of concern if the liner is moving too fast. A liner moving within a pulsation cycle that has a c phase of 120 milliseconds or less can create a pressure spike within the teat causing discomfort to the cow (1). During the initial closing of the liner there is no contact between the teat end and the liner. Teat end contact is created when the liner has collapsed to the point where it starts to bend around the teat. This is the point where most people believe that the significant portion of Liner Compression begins.

Figure 1 : Relationship of Touch Point and Over-Pressure



Key events happen when the teat end starts to absorb force. First, the Touch Point (TP) of the liner is reached. The TP is the point at which the opposing walls of the liner touch (3). TP is a useful measurement and is most accurate when comparing liners of the same barrel shape to each other. Comparing TP among similar-shaped liners can give you an indication of how a liner may perform using certain machine settings. Liner properties that affect TP are the same as the factors that affect LWM. A common misconception is that the TP of a liner can be subtracted from the claw vacuum to figure the milk-to-rest ratio. This is commonly referred to as Residual Vacuum available for Massage (RVM). The fault in this theory is assuming that milk stops flowing when the TP is reached, which is not true for most liners.

Many believe that the pressure when milk stops flowing is sufficient enough to evaluate the compression of a liner. The term used to describe the load the liner applies to the teat from this point through the d phase of pulsation is Over-Pressure (OP) (2). While OP and TP are different in practice, there is a correlation between them, at least for the current liner designs commercially available today (see Figure1.)

Recommendations have been published suggesting the amount of OP that is optimal. Liners operating in the 2.5-3.5 inHg range of OP have shown favorable results on teat end health and prove to provide enough relief from milking vacuum to overcome teat congestion and edema (2). The Lauren Tri-Circle® Liner operates at a 3.5



inHg OP. The unique barrel design and material used in Lauren Tri-Circle® Liners enable it to operate at this level. Other commonly used liners operate in the 5.5-7.0 inHg OP range. In order for these liners to decrease their OP values, they would need to increase wall thickness or durometer or decrease milking vacuum. The results of these actions could lead to operating parameters that would be less than optimal or liner compression that never reaches the teat end.

Achieving the correct liner compression within a milking system is a balance between liner design characteristics and machine settings. Monitoring teat health, cow behavior, and milking performance are indicators that can be used to judge how effective a liner is operating. High rates of hyperkeratosis can mean that there is excessive liner compression, and slow milking can be an indicator of insufficient liner compression. If you have questions on liner compression, or would like to know the Touch Point or Over-Pressure values for the liner you are currently using, send your questions to research@lauren.com.

Key Points:

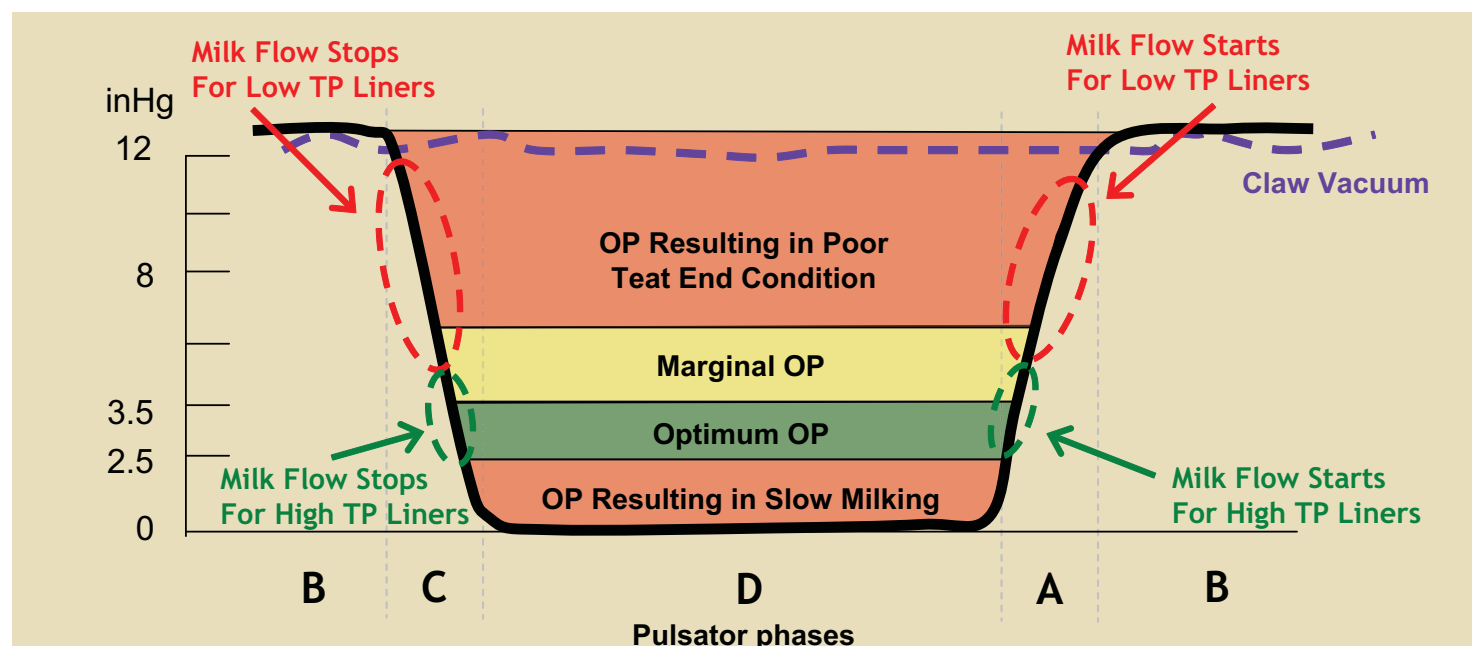
- Pulsation is Liner Wall Movement
- A fast c phase may cause discomfort to cows during milking
- Liner Compression starts when the liner contacts the teat during closure
- The significant stage of liner compression starts when milk stops flowing and continues until milk starts flowing again
- Over-Pressure starts in the c phase and reaches its maximum value during the d phase of pulsation
- Touch Point and Over-Pressure are correlated
- Touch Point is a good tool to use when comparing similarly designed liners

1. Kochman, A.K., F. Saho, B. Costello. 2008. Initial Pressure Application to the Teat by Various C Phases. NMC 47th Annual Meeting Proceedings, New Orleans, LA, pp 186-187.

2. Mein, G.A., D.M. Williams & D.J. Reinemann. 2003 Mechanical forces applied by the teatcup liner and responses of the teat. 42nd Annual Meeting Proceedings, Ft Worth, Texas, pp 114-123.

3. Nordegren, S.A. 1980. Cyclic Vacuum Fluctuations in Milking Machines. (Doctoral Dissertation, University of Hohenheim, Germany), p 144.

Figure 2 : A representation of how Low and High Touch Point Liners affect the Over-Pressure on the teat along with the results that can be associated with different levels of over-pressure.





**Come visit us at
World Dairy Expo!
Exhibition Hall,
Booth 1501-1503**

Stop by to see our
Green Liners, the new
Lauren 608 Shells, and
the best Short Air Tubes
in the industry!



Green Liner:

- Healthy Teat Ends
- Less Squawks, Falloffs and Kickoffs
- Fast Milking



Lauren 608 Shell:

- Seals at Both Ends
- Non Twist
- Better Balance
- Hangs Straighter

2162 Reiser Avenue SE
New Philadelphia, Ohio 44663
330.339.3373 or 800.683.0676
www.laurenagrisystems.com
www.teathealth.com



A Lauren International Company



**Upcoming Show Schedule and
New Dealers:**

World Dairy Expo

September 29 - October 3
Madison, Wisconsin
Exhibition Hall - Booth 1501, 1502, 1503
www.worlddairyexpo.com

World Ag Expo

February 9-11
Tulare, California
Dairy Center 6339
www.worldagexpo.com

Keystone Farm Show

January 5-7
York, Pennsylvania
Building #1 Booth 280, 281
www.keystonefarmshow.com

New York Farm Show

February 25-27
Syracuse, New York
Horticultural Building (#3)
www.newyorkfarmshow.com

New Additions:

We would like to welcome our new dealers to the ever-growing Lauren AgriSystems family:

Somerset Dairy Farm Service

Somerset, PA
814-443-2347

Charles Olin & Sons

Elmira, NY
607-796-2186

We look forward to continued success with the help of our new dealers!