What Does It Take? -- "550,000 SCC to >200,000 SCC"
The changes made at the UF Dairy Unit

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Introduction

All the "GREAT IDEAS" about how to lower Somatic Cell Count (SCC) and keep milk quality high won't amount to anything unless you figure out how to implement them on your farm. This paper will explain what has worked for the team at the University of Florida Dairy Unit and how the dairy became a Top Quality Milk Producer.

The UF Dairy Unit

University of Florida (UF) Dairy Unit (DU) has been at the current location since 1949. The dairy is located on 850 acres in North Central Florida about 10 miles north of the UF campus in Gainesville, Florida. We are a fully functional confinement type dairy farm with over 1,200 animals, 500 milking, that provides the Animal Sciences Department and Veterinary Medical Teaching Hospital at UF access to a commercial dairy herd for research and teaching.

Preventative Maintenance

Do you know when the last time inflations were changed on your dairy? What about pulsation air tubes? Does your parlor team have a schedule for changing all the rubber and silicone items in the parlor and milk room? Grady Byers, the UF Dairy Unit Parlor Supervisor, has a monthly maintenance schedule that is posted for all milking Shift Supervisors. This schedule makes sure that nothing gets missed and all supervisors check off what has been done on their shift. One of the better ideas that we have implemented is using an offsite company to do preventative maintenance of the parlor area once a month. The list below contains the things they will inspect and fix as needed:

- Vacuum pump: Belts and oil checked. They change the oil annually along with checking the variable speed drive and making sure we have a very stable vacuum during milking.
- Bulk tank refrigeration: All cooling lines are inspected, fans checked and freon levels are checked and adjusted for maximum cooling.
- CIP (clean-in-place) wash system for parlor: All chemical concentrations are checked and chemical pump calibration along with pump tubes. A full wash will be run with air injectors and water amounts checked. All chemical concentrations will be checked along with chemical pump calibration.
- All milk pumps will be checked.
- Air compressors are checked.

The University of Florida Food Animal Reproduction and Medicine Service (FARMS) veterinarians check all pulsators every four to six weeks to make sure they are functioning properly.

Working together to make sure all systems are working properly has greatly improved the quality of our milk.

Milking Procedures

These are the changes we made to the milking procedures for our double-12 herringbone parlor. The original procedure was as follows:

1. Wash all groups in the wash pen for 4 minutes.
2. Bring in one line of cows.
3. Starting with the first cow, take 2 strips of milk from each quarter.
4. Attach the milking machine.

This was a very simple routine that the parlor team liked because it was very easy, but it left a lot to be desired for optimal milk letdown stimulation. After consulting with our Standard Operating Procedures (SOP) team at one of our first SOP meetings, David Bray gave came up with the following procedure we are currently using:

1. Wash all groups in the wash pen for forty-five seconds.
2. Bring in one line of cows.
3. Starting with the first four cows, pre-dip and strip 2 strips from each quarter each cow.
4. Go back to the first cow pre-dipped and wipe each quarter using a single fold towel and attach the milking machine. Continue to all four cows using a new towel for each cow.
5. Start pre-dipping and stripping the next four cows going back to the first one pre-dipped to wipe each teat and attach the machine.

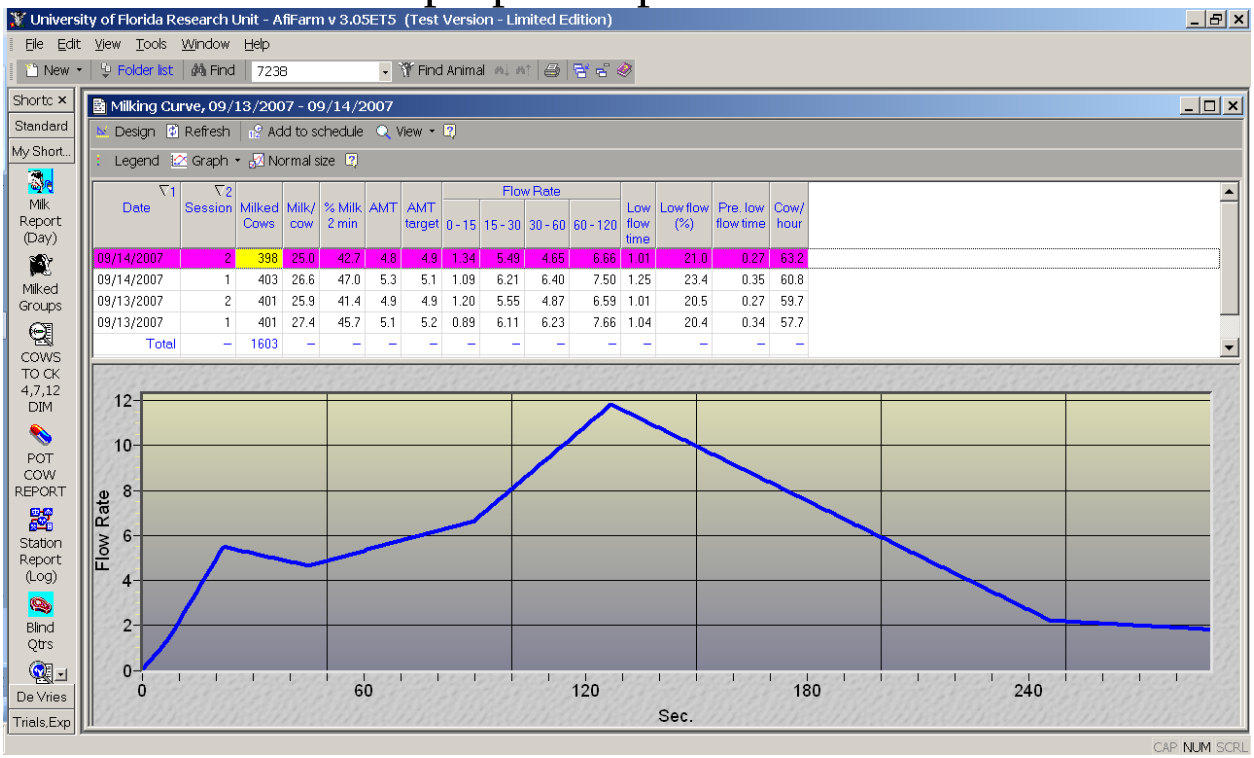
Milking Crew Meeting

When I went to the parlor team and explained the new procedure for our milking routine to say it was met with a little resistance would be a major understatement. I realized that putting this advice into action would be most challenging. The only thing the team was thinking about was all the extra work that would be required. My first thought was just to tell them that this is the way it is going to be if you wanted to work for me. But, after thinking about it, I decided to hold another meeting with the parlor team to explain in detail why we were going to make these changes. We went over the following points to make sure they understood not only the new procedures, but why we were putting them in place.

1. The Dairy Unit SCC was between 500,000 and 600,000.
2. We were having way too many clinical cases of mastitis.
3. By changing to the new procedure the milking time would actually decrease because the cows were properly stimulated.
4. Overall milking time would be decreased because we would have fewer cows in the Hospital herd.

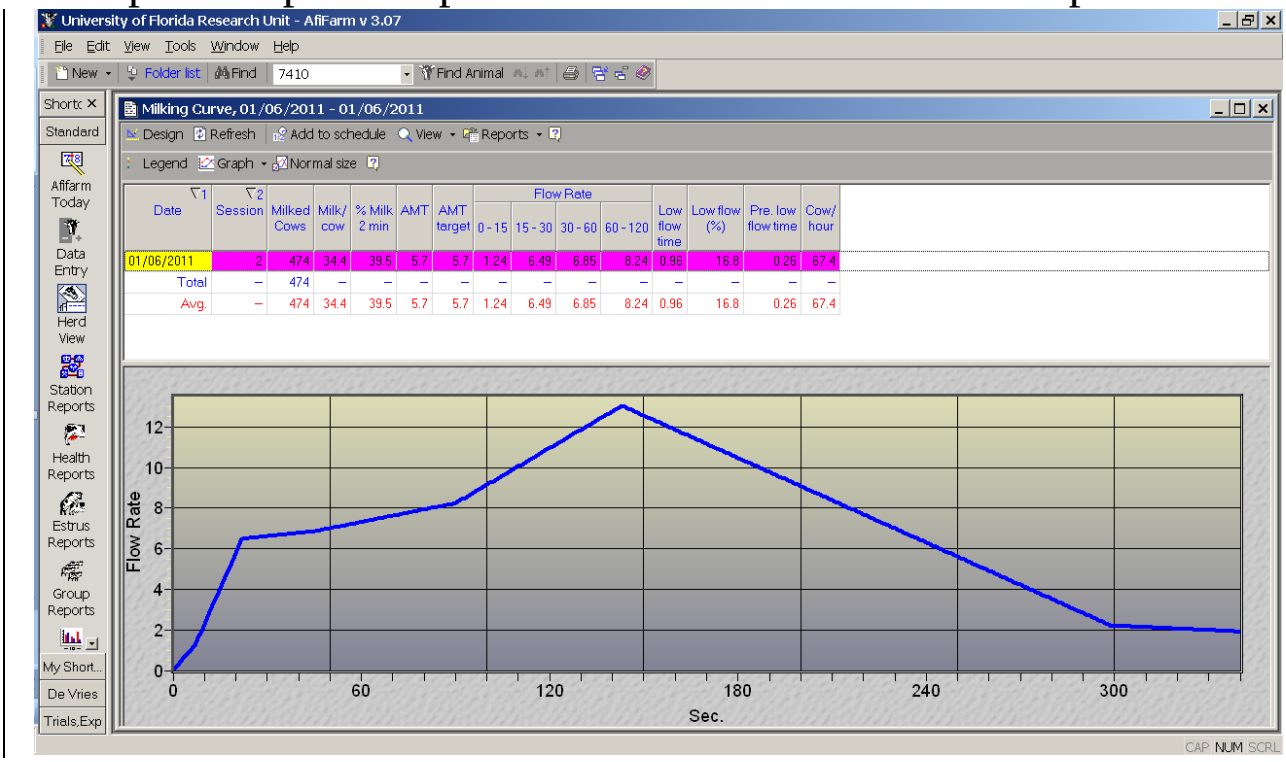
The first milking shift used the new procedures and when they had finished their shift we went over the results of the changes that could be seen in milk flow using the AfiFarm graphs.

No prep / Strip and Attach



Date	Session	Milked Cows	Milk/ cow	% Milk 2 min	AMT	AMT target	Flow Rate 0 - 15	Flow Rate 15 - 30	Flow Rate 30 - 60	Flow Rate 60 - 120	Low flow time	Low flow (%)	Pre. low flow time	Cow/ hour
09/14/2007	2	398	25.0	42.7	4.8	4.9	1.34	5.49	4.65	6.66	1.01	21.0	0.27	63.2
09/14/2007	1	403	26.6	47.0	5.3	5.1	1.09	6.21	6.40	7.50	1.25	23.4	0.35	60.8
09/13/2007	2	401	25.9	41.4	4.9	4.9	1.20	5.55	4.87	6.59	1.01	20.5	0.27	59.7
09/13/2007	1	401	27.4	45.7	5.1	5.2	0.89	6.11	6.23	7.66	1.04	20.4	0.34	57.7
Total	–	1603	–	–	–	–	–	–	–	–	–	–	–	–

Predip & Strip 4 / Wipe & Attach 4 with variable rate pulsation



I was very excited with the results. Not only do we have a prep procedure that will stimulate the cows, but will increase milk flow along with cows milked per hour. When this was shared with the parlor team they had the understanding that they needed to keep following the new procedures.

Free Stall Bedding

When you are dealing with a high SCC and too much clinical mastitis you cannot afford to overlook the freestall bedding. The question of how best to manage sand free stalls was added to the SOP agenda. The one thing that kept coming up is how to keep the back part of the beds clean and dry.

With the help of some pictures that David Bray took of a bedding tractor and a great maintenance shop crew, we made a bedding tractor to not only level the beds, but scrape the manure away from the curb at the same time. With this new tool in place we had a meeting with the parlor team. They would now be using the bedding tractor to “make the beds” for all groups before the cows went back to the barn after being milked. All of the employees on the parlor team take turns milking and bringing the cows to the parlor.

One of the first comments from the parlor team was how clean the cows were with only a forty- five second wash before milking. Not only did we reduce the amount of water, but also the drying time before the cows entered the parlor. After a few months of using this protocol it was brought to my attention during a meeting with the parlor team that a couple of days before it was time to put more sand in the freestalls the cows were not as clean as they should have been. At the same time the farm crew supervisor told me he was having trouble with too much sand in the sand separator catch ditch the day after we added new sand. Taking this into consideration, we changed the SOP

procedure for bedding the barns. Now we use the same amount of sand per week, but add new sand twice a week instead of once a week. This has been a work in progress and it will most likely change again if someone has advice which will improve these procedures.

Use of meter conductivity, SCC ranges of the AfiLab and Management Changes to help lower SCC of the DU

YEAR	BULK TANK --- SCC AVG.
2006	559,070
2007	540,790
2008	351,200
2009	296,500
2010	233,040
2011	185,310
SCC DIFFERENCE	-373,760 = $

It is my opinion that when you are working with a high SCC herd, one of the issues overlooked is the effect of mastitis on reproduction. This was a major item discussed at the SOP meetings and with the parlor team.

The Fresh Cow

We decided to start with the cow right after calving. The FARMS veterinarians put together procedures for all fresh cows. These procedures are included in the SOP and have greatly helped with not only treatments, but with the diagnosis of digestive, uterine and udder problems in early lactation animals. This has had a great impact on not only SCC, but peak milk and conception rates for first insemination. The 4, 7, and 12 day in milk health checks for all fresh cows are the beginning of the dairy unit reproduction program.

Milking Herd Reproduction

When we decided to work on improving reproduction, once again it started with the SOP meetings. One of the first problems we looked at was the artificial insemination (AI) technicians. Quite frankly, none were very good. We decided to hire Dr. Jeremy Block as our AI Technician and to do all of our embryo transfer (ET) work. Since we were working with only one person for all inseminations we decided to use all Timed Artificial Insemination (TAI) so that all groups of cows and heifers would be inseminated on the same day. The UF Veterinarians again developed a

procedure for our reproduction program that would work with the facilities at the Dairy Unit. This has not only lowered the average days in milk for the milking herd, but has increased the number of heifers we have as replacements. It is a great feeling knowing that you have a heifer to replace some of the chronic mastitis and high SCC cows. These are the results of our reproductive program:

We get cows pregnant

YEAR	A I per COW (All cows)	A I per PREGNANCY	CALVING INTERVAL
2005-2006	6.9	3.1	478
2006-2007	2.8	2.4	453
2007-2008	2.6	2.4	436
2008-2009	2.3	2.2	423
2009-2010	2.02	1.94	420
2010-2011	2.04	1.93	413
PROGRESS			- 65 days

We will always be striving to produce Top Quality Milk. All dairymen know to keep striving to increase production and reproduction while making sure you are shipping top quality milk. It is a task that will never end. This is what I think is a great part of being involved with the dairy industry. I will always be asking for advice and taking this advice to the SOP meetings and the parlor team to see what will fit the Dairy Unit to make this the number one Dairy Research Unit in the USA for both research and production of Top Quality Milk. The results are in and here they are:

January 1 thru December 31, 2011

SCC	SPC	PI	LPC
183.82	7	10	34

Don't just buy a program,
BUY INTO THE PROGRAM!!

Thanks to all who have helped make the Dairy Unit a better place to work and conduct research.

Special thanks to:

Sherry Hay—Heifer Unit Supervisor,
Grady Byers—Parlor Supervisor,
and all the Dairy Unit Employees who have
"**Bought Into the Program.**"

NOTES