

MILK QUALITY

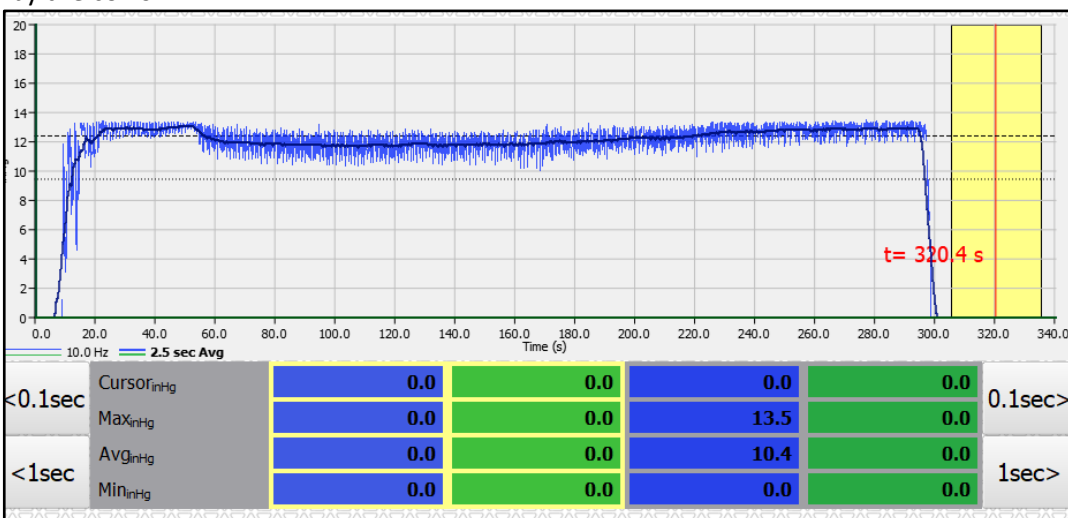
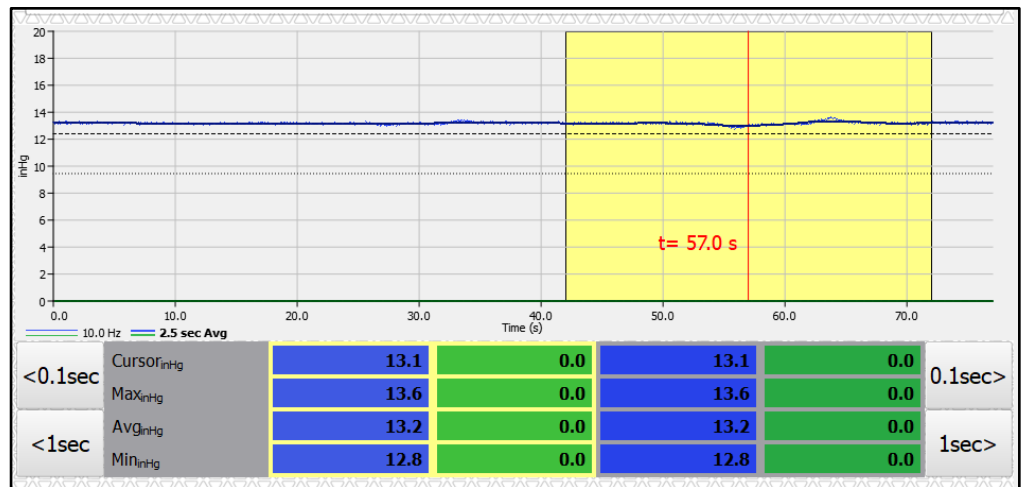
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The Process of a Proper Milking System Evaluation

To do a proper milking system evaluation the evaluator must examine the equipment, the milkers and the cow's environment. Many dairies today are milking around the clock. When we examine a system we measure the vacuum at the pump, at the trap and in the milking claw. One of the first tests we do is a unit fall off test. This test measures the system's vacuum reserve and to test the system's ability to maintain a stable vacuum. To do this test the vacuum is recorded and one unit is opened up if there are less than 32 units. If there are more than 32 units or if 2 people are milking in the parlor, than 2 units are opened up. A vacuum recorder is being run while the units are opened and closed. To pass the test, the system vacuum must drop less than .6" of vacuum when the units are opened and must not go over the operating vacuum by more than .6" of vacuum when the units are closed.

The graph at right is the unit fall off test. This system passed the test with a .4" Hg drop on fall off and a .4" override.

We also do 10 claw vacuum measurements while the cows are being milked. We try to find fast milking cows to see what the vacuum is under peak flow and see if it is in the acceptable range for the liners being used. With this measurement we can also examine the milking procedure to see if there is proper let down by the cows.



The graph at left is from a cow that only had a 60 second lag time from stimulation to unit attachment (90-150 seconds recommended). The vacuum drops as the flow increases. This cow did not drop her milk until the unit was on for close to 60 seconds.

As we are doing the vacuum measurements, we also time the milking procedure for the proper timing between steps. This is a very good time to watch the milkers procedures because they think we are busy doing our measurements and they feel comfortable doing there procedures like they do most of the time.

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We also check for unit alignment and hose length. Pictured at left, too long of hoses leads to more vacuum fluctuation at the teat end. When we are finished doing our vacuum measurements, we graph all of the pulsators.

The table pictured below is of the different phases of the pulsation graph. In this example pulsator #7 failed because its D phase is too short at 186ms. After checking the equipment, we take alcohol pads to check the teats before the units are attached. We grade each milker on how much manure or dip is left on the teat before the units are attached.

Stall, Port	A-Phase (ms)	B-Phase (ms)	C-Phase (ms)	D-Phase (ms)	Ratio A+B (ms)	Max. Vac. (inHg)	Dsec (ms)	Rate (cpm)	B-phase Drop (inHg)	Limping (ms)	Balance (ms)
1,P1	101.0	537	119.0	245	638	12.7	245	59.8	0.4	3.0	1.0
1,P2	97.0	538	118.0	248	635	12.9	248	59.9	0.4		
2,P1	117.0	530	119.0	243	647	12.7	243	59.5	0.3	9.0	6.0
2,P2	102.0	536	124.0	241	638	12.9	241	59.9	0.3		
3,P1	108.0	534	132.0	228	642	12.7	228	59.9	0.3	3.0	1.0
3,P2	106.0	533	135.0	230	639	12.9	230	59.7	0.3		
4,P1	111.0	530	125.0	237	641	12.6	237	59.8	0.3	2.0	1.0
4,P2	108.0	531	129.0	235	639	12.9	235	59.8	0.4		
5,P1	110.0	526	131.0	233	636	12.7	233	59.9	0.4	3.0	6.0
5,P2	107.0	532	139.0	224	639	12.8	224	59.9	0.4		
6,P1	112.0	529	123.0	240	641	12.6	240	59.7	0.3	7.0	3.0
6,P2	102.0	532	130.0	237	634	12.9	237	59.8	0.3		
7,P1	110.0	533	137.0	221	643	12.6	221	59.9	0.2	1.0	1.0
7,P2	112.0	532	171.0	186	644	12.9	186	59.9	0.2		
8,P1	97.0	540	126.0	237	637	12.6	237	60.0	0.2	0.0	8.0
8,P2	89.0	548	123.0	242	637	12.9	242	59.9	0.4		
9,P1	99.0	540	130.0	232	639	12.6	232	59.9	0.2	2.0	2.0
9,P2	95.0	542	132.0	232	637	12.9	232	59.9	0.3		
10,P1	110.0	529	132.0	232	639	12.6	232	59.8	0.3	1.0	5.0
10,P2	104.0	534	134.0	230	638	12.9	230	59.8	0.3		
11,P1	99.0	540	121.0	243	639	12.7	243	59.9	0.4	1.0	2.0
11,P2	96.0	542	121.0	235	638	12.9	235	60.3	0.4		
12,P1	110.0	529	128.0	235	639	12.7	235	59.8	0.2	3.0	1.0
12,P2	108.0	528	143.0	222	636	12.9	222	59.9	0.3		



Pictured at left, we test to see how much manure and dip is left on the teat ends. After we are done in the parlor, we walk the environment of the cows and check cow comfort, cow cleanliness, free stall usage, bedding levels, and proper cow alignment in stalls. Pictured at right, cows are lying too far forward in stalls. When we are finished with our parlor exams, we write a report on our findings. This is very important because it documents our measurements and observations. At the end of our reports, we always list our recommendations.



Dr. Molly Attends Milk Quality Seminar

Dr. Molly attended a 3-day milk quality seminar at the American Association of Bovine Practitioners in Milwaukee at the end of September. The seminar was taught by Dr. Andy Johnson and covered milking time management; basic milking machine function and evaluation; the interaction between the cow, udder pathogens, and treatment; and farm level management and training. Dr. Molly is working to produce quality milk with our clients and has the advantage of speaking Spanish.

