

# What's New In Mastitis

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Florida cows have always had a love affair with Mastitis; we went from the mud E.coli period, to the strep ag period that thrived because we used wand teat sprayers. Mycoplasma loved the summer heat and humidity. My outstanding Extension and research program in Mastitis control has closed down those problems.

Strep uberis now gives extraordinary high cell and bacteria counts. Mycoplasma is more prevalent in the winter than summer. I am expanding my educational efforts to teach those two organisms how they are to act. Strep uberis is an environmental organism that is supposed to live in the udder for only a short period of time then it clears up and becomes clinical. It seems to be more of a long time udder inhabitant.

A few cows high cell counts were cultured for pathogens and SCC counts. The results are in Table I. The very high cell and bacteria counts on this dairy with a high strep uberis bulk tank count were not expected. Just a few cows can be raising high counts.

**Table 1. Early Uberis Research**

Cow #	Standard Plate Count	DMSCC
2215		21,448,028
6957RBP	185,800	21,820,800
OR6516RFG	164,900	16,274,680
G2109RBB	167,200	17,729,400
G3357	3,904,000	24,366,560
G3301	1,092,000	11,955,980
G3802RBP	139,600	21,229,820
G3699LFB	264,200	13,683,460
OR7270LBB	156,200	20,734,660

Another bit of data from another Florida dairy with a high bulk tank cell count was also different than expected. We usually think that the strep ag cows are the only ones that give the high SCC and SPC's. Table 2 has the breakdown. This data also show what happens when you are sloppy with treatment procedures. The Nocardia cows have

very high counts. This organism was injected into the udders by the person treating cows for some other type of mastitis or in dry treating. This organism will never leave the udder while the cow is alive. This is a very expensive man-induced form of mastitis.

**Table 2. Organism vs. SCC's (77 cows)  
Strep ag problem herd**

Organism	# cows	Average Scc	High Scc
Norcardia	4	16,563,385	23,639,200
Strep Ag.	18	12,471,921	31,140,100
Strep Uberis	8	12,421,684	41,186,316
Strep Dys.	7	9,876,637	18,411,300
E. Coli	7	5,206,803	13,000,560
Coag + Staph	10	5,100,000	17,088,144
Prototheca	2	4,957,633	5,964,523
Contaminated	14	3,179,172	5,591,558
Coag - Staph	15	3,041,748	14,138,060
C. Bovis	2	2,041,136	2,095,670
No Growth	31	508,453	3,057,600

Dairy Check Off Project

Last year I received money from the check off committee to sample high strep uberis herds- (as indicated by bulk-tank results).

One herd with a uberis problem sent in as many cows as possible. They had to be fresh unfrozen samples so SCC's could be done on them, enabling them to compare the pathogens with the SCC's. We usually think that Mastitis is highest around calving. Because the cows sampled on this farm were sampled for a variety of reasons – clinical, dry off, etc. I will list the average days in milk (DIM), at sampling by organism tables, even though the days in milk may not be meaningful.

**Table 3. Organism vs. SCC's  
Uberis Problem Herd**

Pathogen	# Cows	Ave Scc.	High Scc	D.I.M.
Coag + Staph	11	4,318,325	10,036,000	141
Strep ag	---	---	---	---
Strep dys.	10	5,916,743	23,780,612	195
Strep Uberis	29	9,512,016	25,241,300	279
Bacillin	3	7,258,416	14,533,625	124
E. Coli	28	10,714,015	28,885,842	336
Coag. – Staph	29	4,131,191	11,819,600	342
Other	26	9,591,006	17,620,296	254
No Growth	74	1,459,669	18,502,134	253

Strep Uberis Conclusions

In this herd strep uberis was not the dominant organism sampled, it had high SCC and SPC, but not the highest. The surprising organism was e. coli, often they show up as no growths. Since some of these cows were often dry off samples the high number of no growths would seem unreasonable. On clinical samples we expect twenty percent on no growths because the high cell count activity often masks the growth or the pathogen on the plate.

### To Control Strep Uberis

- All pulsators must work well
- Mow weeds
- Fly control
- Remove filth, add clean dirt
- Pump out ponds if filthy
- Milk clean dry udders

### Fresh Cows and Heifers Calving with Mastitis

- Weeds cut teat ends
- Flies go to blood
- Flies infect teat ends
- Mastitis occurs

### High Weed Indicator

1. Walk pasture in bathing trunks
2. If thighs bleed – Mow weeds

### Mycoplasma

Much misunderstanding still remains over this organism. The traditional method of eradication has been to sample and depopulate by culling the animal, thus removing the animal from the herd and eradicating the disease from the herd.

It seems to me that following this advice will only cause eradication of dairymen, our work has demonstrated that mycoplasma does not just live in the udder of the cow, but in the environment as well.

The following table 4 & 5 are the results of pond water sampling taken from one herd in the state. While we can make the assumption that ponds must be bad because they are contaminated with mycoplasma, it is also found in mud in lots of dairies' that do not have ponds.

**Table 4. Results Of 11 Ponds Sampled For Mycoplasma**

- 1 pond = negative for mycoplasma
- 6 ponds = were heavy growth of mycoplasma – over 10,000 col/ml
- 4 ponds = were average for mycoplasma – 1200 col/ml

**Table 5. Pond Water Samples**

Herd/Pond	Mastitis Organisms	Mycoplasma
1 <sup>st</sup> Herd	8,600 coliforms, 7200 gram + bacillus 2100 staph - coag, 600 strep uberis	300 col/ml
2 <sup>nd</sup> Herd	12,800 coliforms, 15,800 gram + bacillus 800 coag - staph, 2900 coryne sp.	HEAVY
Pot Herd	18,800 coliforms, 24,200 gram + bacillus 6,000 coag - staph, 6,800 coryne sp.	HEAVY
Springers	18,200 coliforms, 28,800 gram + bacillus 5800 coag - staph, 2000 coryne sp.	HEAVY

**A Mycoplasma Problem Herd**

This herd came positive for mycoplasma last fall. They also had an outbreak of strep ag at the same time. This is a large herd of 2000 plus cows. Cows were post-milking teat sprayed, which is usually common in strep ag outbreak herds and since mycoplasma is a contagious organism I'm sure it helps in the spread also.

Another by factor in this herd was the fact that many pulsators were not working correctly and most of the teat ends in the herd were not smooth but were rough and damaged. The pulsators were repaired immediately, but the post-milking teat spraying continued for five more months.

There were 93 animals left in the herd that have been positive at one time or another 337 animals have been culled for mycoplasma.

The current test day averages are in Table 6

**Table 6. Herd**  
Results of the 93 positive cows.

Date	Milk Weight	SCC
April 2000	63.6	604,000
March 2000	66.0	639,000

Many cows have been sampled for mycoplasma, of those that initially sampled negative, but later sampled positive are in table 7. Also listed in table 7 is the number of treated episodes and the total time the cow was listed clinical, treated or untreated.

**Table 7. Cows that have gone sampled negative to sampled positive**

# cows	Ave. days from - to +	Ave. # antibiotic treatments	Ave. Total times clinical
42	113	10.3	12.9

In this herd, as in others cows do go from positive to negative for mycoplasma. In table 8 the clinical data is included.

**Table 8. Cows that have gone sampled positive to sampled negative**

# cows	Ave. days from + to -	Ave. # antibiotic treatments	Ave. Total times clinical
9	55	5.5	6.1

Table 9 includes the clinical mastitis data for the cows that were never sampled negative but became positive.

**Table 9. Cows that had treatment histories that were never cultured mycoplasma negative but become culture positive.**

# cows	Ave. # antibiotic Treatments	Ave. Times Clinical
8	11.5	11.7

Table 10 includes the cows that are still in the herd who were cultured positive for mycoplasma and had no clinical mastitis episodes in that lactation. As you can see the milk production is quite high. This demonstrates the need of not culling the cows unless they become clinical and will not leave that clinical state.

**Table 10. The number of cows that were only sampled once were positive and had never had any clinical mastitis in this lactation**

# cows	Milk weight at the 1 <sup>st</sup>	Previous month milk weight
34	71.2	72.9

While this herd seemed to treat cows for clinical mastitis longer than I would, it does demonstrate that mycoplasma comes and goes, thus, treatment is useless, negative cows can become positive, and positive cows can become and stay negative.

Some Mycoplasma Thoughts

1. It lives in the soil, mud, ponds, pot herds, bottle mixes.
2. It sheds and stops
3. Many cows go negative and stay that way
4. You are never free of it – see number 1 above

Bio-Security Pit Falls

1. Since many cows shed and stop, sampling only sees what the picture was at that sampling. Those of us who sample purchased cows find them negative and that sampling and later find them positive in lactation have decided that this is no bio-security, but false bio-security that can lead to disaster.
2. In Florida the people who sample cows in the pit are not usually veterinarians with sterile stainless steel tables, but tired milkers with minimal training of sanitation or sampling techniques.
3. Culling positive cows on sample results can be an expensive mistake if the cow does not develop untreatable clinical mastitis or drops in milk production to unprofitable levels for the herd.
4. If the organism lives in the environment that is unrealistic to think you can eradicate the disaster by culling.

### Common Sense Mycoplasma Control

1. Nothing but commercial mastitis tubes for the treatment of clinical mastitis.
2. All treatment of mastitis should be done with clean or gloved hands, teat ends cleaned with alcohol and cotton before any treatment takes place. Don't waste your time and money giving other antibiotics in the muscle, etc. For mycoplasma it doesn't work.
3. Keep pulsators in top working order. It is not illegal to purchase a new complete pulsation system every 3-4 years on herds that milks 20 + hours a day.
4. Post dips every teat of every cow to the base of the udder with a good teat dip.
5. Drain and clean out the sludge in all cooling ponds every winter leave them empty for the sun to shine on.
6. Clean out all mud and manure from lots, corrals, etc. and replace it with new clean dirt, at least once a year.
7. Cull all cows that are clinical in more than one quarter and will not clear up. No matter what the organism, it is stupid to treat cows 15 times lactation.
8. Cull all cows that drop below your preset milk production limits.
9. I would not cull non-clinical cows that show up positive on a mycoplasma sample. It could be a mistake, she may never show positive again.
10. Hire herdsman, not herd health treatment people.
11. Do regular bulk tank cultures to know your status.
12. If you can't do the above – Here is your sign!