



# River Valley Veterinary Clinic

## July 2017 Newsletter

### Culture Milk to Save Money

A quarter to a third of cows with mastitis don't actually need intramammary treatment! The best way to determine which ones need treatment is through a milk culture.

Why does milk culturing work?

With a new infection, classify the severity as Mild, Moderate or Severe based on how the cow's milk, udder and whole body are affected.

Severity	Mild	Moderate	Severe
Milk	Abnormal	Abnormal	Abnormal
Udder	Normal	Abnormal	Abnormal
Cow	Normal	Normal	Abnormal

Cows with severe infections will likely need veterinary intervention and require immediate and aggressive treatment with fluids, systemic and intramammary antibiotics, anti-inflammatories and calcium. But severe cases only occur 15% of the time; the other 85% are the mild and moderate cases where milk cultures are most informative. With mild and moderate infections, delaying treatment for the 24-36 hours it takes to culture the milk will not change the outcome. And it's well worth the wait if the culture has 'no growth' and she doesn't need treatment!

*Why won't a culture always grow bacteria?*

The chunky milk and swollen udder that identify mastitis are evidence of the body's immune system responding to the infection, and at least 20% of the time, the body is perfectly capable of eliminating the infection without help from antibiotics. To clear the infection, the body initiates the inflammatory response, involving redness, swelling and heat. Blood flow to the udder is increased, creating the redness and swelling, bringing in a massive force of inflammatory cells that begin attacking and killing the bacteria. The increase in blood flow also increases the temperature in the udder, which weakens the bacteria. Dead bacteria and inflammatory cell casualties create the chunky milk. When a milk culture doesn't grow anything, the immune system has eliminated the infection on its own, meaning all the dead bacteria and inflammatory cells have left the udder. No antibiotics are necessary, but the milk should continue to be discarded until it visibly returns to normal.

When an organism grows in the culture, antibiotic reinforcements are required and the veterinarian who did the culture will advise on the best course of treatment.

*Why treat based on a milk culture?*

The biggest draw is the cost savings: the cost of culturing every mastitis cow is much less than the cost of treating every mastitis cow. For example, Spectramast LC is \$4.71/tube and with a standard 3-5 day treatment course, that comes to \$14.13-\$23.55 in antibiotics alone. The Today tubes are \$3.36 apiece and following the label of treating twice, 12 hours apart, it's \$6.72 per case plus the cost of labor. Compare those prices to the cost of an in-house milk culture at RVVC, which is \$6 per culture. The money saved in not treating at least 20% of the cows more than covers the cost of culturing every mastitis cow and can increase cash flow.

Another excellent reason is that less antibiotic use results in more salable milk and a reduced risk for residues in the tank, as there will be fewer cows with milk withholds.

A study published in the Journal of Dairy Science in 2016 found that treating mastitis cows based on milk culture "resulted in reduced treatment costs, increased volume of salable milk, and allowed for a **76% reduction** in intramammary antimicrobial use with no impact on therapeutic success resulting in an **increase in cash flow of over \$300,000 per 1000 cows.**"

Over the years, it has become standard for any cow with mastitis to automatically be treated with intramammary antibiotics. But with new knowledge about milk cultures and the positive effect they have on reducing the number of unnecessary treatments while not affecting the cow's health, we can modify our instinct and instead of going for the mastitis tube, reach for a milk vial.

On the next page is a review of taking a good milk sample for culture from the UW Milk Quality lab, a description on how to have milk cultured at RVVC, and a protocol for mastitis treatment modified from the UW Milk Quality Lab.

## Collecting Milk Samples for Culture

(from the UW Milk Quality Lab)

1. Label a new/sterile milk collection vial with the cow's ID, the affected quarter and date of sample collection
2. Remove large debris with a single use towel
3. Pre-dip to sanitize the skin with 20-30 seconds contact time
4. Dry teat with a single use towel
5. Prestrip 3-4 times to remove bacteria from the teat canal that could contaminate the sample
6. Scrub teat end with alcohol wipe or gauze soaked in 70% alcohol
7. Collect milk in vial. Don't touch inside of vial to avoid contaminating sample
8. Place in refrigerator or cooler until it can be placed on the culture media

## Culturing Milk at RVVC

1. Drop off refrigerated milk samples at either RVVC clinic, preferably in the morning
2. Each sample will be immediately placed on a culture plate and incubated
3. After 24 hours, the plates are analyzed by a veterinarian or technician and organisms are identified
4. If organisms are growing slowly, we may need to wait another 12-24 hours to identify them
5. We contact you with the results and the best course of action

