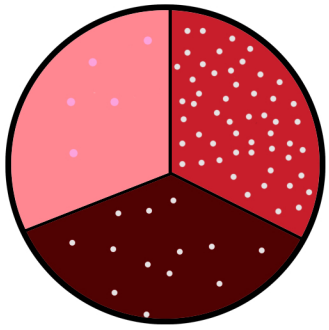
WHAT CAN GO WRONG?

Contamination

One problem that can easily occur for on-farm culture labs is contamination during sample collection, handling or plating. Contamination can be difficult to detect on selective media, since many contaminants are not able of grow. Prevention is key in reducing the number of plates that become contaminated.

Contamination

Contaminated plate (growth on all agars)



Contamination during sample collection may occur if udders are not properly disinfected prior to sampling, if the teat, the cow's tail, or another source of manure contacts the sample vial, or if the vial is not closed promptly after sampling.

Contamination during sample handling can occur if the sample is not placed in a cooler during transport to the lab, or if it is allowed to sit out for greater than one hour prior to plating.

Contamination during plating can happen if staff do not wear clean disposable gloves, if sterile swabs are left uncovered or contact non-sterile material, or if plates are not covered immediately after plating.

Benchmark: If more than 5% of the culture plates are contaminated, procedures should be evaluated for aseptic technique, and the appropriate changes or training should be performed.

Failure of Quality Control

Another problem that can influence the value of culture results is failure of quality control lab processes.

Incubator temperature should be maintained at 37 degrees Celsius or 98.6 degrees Fahrenheit. If the incubator temperature is too low or too high, disease-causing bacteria will not grow as well. This can lead to no-growth samples or mis-diagnoses.

Incubator humidity must remain high as well. A container of water should be kept in the incubator and refilled often to maintain moisture levels conducive to bacterial growth.

Benchmark: On-farm culture results should be compared to milk quality lab results at specified intervals to evaluate the quality of on-farm interpretation. They will not be identical but they should agree in general about 80% of the time.

WHAT CAN GO WRONG?

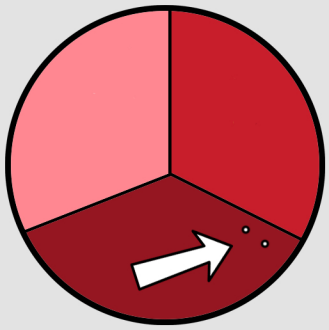
Over-interpretation of Bacterial Growth

In real diagnostic labs about 25-40% of milk samples from cows with clinical mastitis result in no-growth or non-significant growth. It is common for a few bacteria to get picked up from teat skin or during sampling, but bacteria on contaminated plates and non-significant growth are not considered the cause of mastitis. Antibiotics should not be given based on contaminated growth or non-significant growth.

Benchmark: Only when you have 1 to 2 types of colonies with at least 3-5 colony-forming-units can you be confident in your bacterial identification and choice of treatment.

Non-significant Growth

Fewer than 3-5 cfu's per colony type



Failure to Use Information Properly

The most common problem at on-farm culture labs is that farmers do not use the culture results for making treatment decisions. The value of any diagnostic test is based on the economic value of the intervention that one makes. If the culture results are not taken into account during real-time decision making, the lab is not having the impact it should on the farm, antibiotic use and costs will not be reduced, and, therefore, the value of culturing is lost.

Benchmark: Work with your veterinarian to design and implement appropriate treatment protocols for your farm. Remember, your local veterinarian and milk quality lab are here to help you. Be sure to contact them for support and accountability in maintaining the quality of your on-farm culture system.