

# Reference Guide to Bulk Tank Analysis and Cow Culture Bacteria

\*from:Reference guide for mastitis-causing bacteria

C. S. Petersson-Wolfe<sup>1</sup> and M. Arnold<sup>2</sup>

<sup>1</sup>Virginia Tech Mastitis & Immunology Laboratory & <sup>2</sup>University of Kentucky  
(Information obtained from NMC Laboratory Handbook on Bovine Mastitis)

| Common Genus/Species                                                                                                                                                                                                                                                                              | Classification                                         | Bacteria                                                | Contagious or Environmental  | Source                                       | Spread                                       | Control                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|---------------------------------------------------------|------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------------------------------|
| Staphylococcus chromogenes<br>Staphylococcus saprophyticus<br>Staphylococcus simulans<br>Staphylococcus xylosus<br>Staphylococcus delphini<br>Staphylococcus haemolyticus                                                                                                                         | <i>Staphylococcus</i> spp.                             | <i>Staph. aureus</i>                                    | Contagious                   | Infected udders, hands of milkers            | Milking time                                 | Post dip, DCT <sup>1</sup> , segregation and cull if necessary       |
|                                                                                                                                                                                                                                                                                                   |                                                        | Coagulase (-)<br>staph. & <i>S. hyicus</i>              | Neither                      | Skin flora & occasionally environment        | Infect teat canal from skin sources          | Post dip, DCT                                                        |
| Aerococcus sp.<br>Aerococcus viridans<br>Enterococcus casseliflavus<br>Enterococcus faecalis<br>Enterococcus saccharolyticus<br>Lactococcus garvieae<br>Lactococcus lactis<br>Micrococcus sp.<br>Streptococcus bovis<br>Streptococcus gallolyticus<br>Kocuria(Micrococcus)kristinae               | <i>Streptococcus</i> spp. and <i>Enterococcus</i> spp. | <i>Strep. agalactiae</i>                                | Contagious                   | Infected udders                              | Milking time                                 | Milking time hygiene, post dip, DCT                                  |
|                                                                                                                                                                                                                                                                                                   |                                                        | <i>Strep. dysgalactiae</i>                              | Contagious and Environmental | Infected udders and environment              | Milking time & environmental contact         | Milking time hygiene, pre & post dip, DCT, teat seal                 |
|                                                                                                                                                                                                                                                                                                   |                                                        | <i>Strep. uberis</i>                                    | Environmental                | Environment – early dry period               | New IMI <sup>2</sup> during early dry period | Milking time hygiene, pre & post dip, DCT, teat seal                 |
|                                                                                                                                                                                                                                                                                                   |                                                        | Environmental strep & <i>Enterococcus</i> spp.          | Environmental                | Environment                                  | Environmental contact                        | Milking time hygiene, pre & post dip, DCT, teat seal                 |
| Acinetobacter sp.<br>Acinetobacter baumannii<br>Aeromonas sp.<br>Citrobacter sp.<br>Enterobacter cloacae<br>Flavimonas sp.<br>Hafnia sp.<br>Klebsiella oxytoca<br>Klebsiella pneumonia<br>Pseudomonas aeruginosa<br>Salmonella sp.<br>Serratia marcescens<br>Stenotrophomonas sp.<br>Yersinia sp. | Coliform and Assorted Gram Negative Rods               | <i>Escherichia coli</i>                                 | Environmental                | Bedding, manure, soil                        | Environmental contact                        | Cows clean & dry, use of sand bedding, pre dip, a J5 vaccine         |
|                                                                                                                                                                                                                                                                                                   |                                                        | <i>Klebsiella</i> spp.                                  | Environmental                | Organic bedding                              | Environmental contact                        | Avoid sawdust & recycled manure, pre dip, J5 vaccine                 |
|                                                                                                                                                                                                                                                                                                   |                                                        | <i>Enterobacter</i> spp.                                | Environmental                | Bedding, manure, soil                        | Environmental contact                        | Cows clean & dry, use of sand bedding, pre dip, a J5 vaccine         |
|                                                                                                                                                                                                                                                                                                   |                                                        | <i>Serratia</i> spp.                                    | Environmental                | Soil and plants                              | Environmental contact                        | Cows clean & dry, pre dip (no chlorhexidine products)                |
|                                                                                                                                                                                                                                                                                                   |                                                        | <i>Pseudomonas</i> spp.                                 | Environmental                | Water & wet bedding                          | Environmental contact                        | No water use in parlor, no cooling ponds, sand bedding, a J5 vaccine |
|                                                                                                                                                                                                                                                                                                   |                                                        | <i>Proteus</i> spp.                                     | Environmental                | Bedding, feed & water                        | Environmental contact                        | Not much known, use of sand bedding, a J5 vaccine                    |
|                                                                                                                                                                                                                                                                                                   |                                                        | <i>Pasteurella</i> spp.                                 | Probably contagious          | Upper respiratory tract of mammals and birds | Unknown – likely cow to cow                  | Prevent teat injuries, remove affected cows from herd                |
| Candida sp. (yeast)<br>Nocardia sp. (gram pos. rods/bacillus)                                                                                                                                                                                                                                     | Other                                                  | Yeast & mold                                            | Environmental                | Soil, plants, water                          | Dirty infusions                              | Aseptic infusions                                                    |
|                                                                                                                                                                                                                                                                                                   |                                                        | <i>Corynebacterium bovis</i> & other <i>coryneforms</i> | Contagious                   | Infected udders                              | Cow to cow                                   | Post dip                                                             |
|                                                                                                                                                                                                                                                                                                   |                                                        | Prototheca                                              | Environmental                | Soil, plants, water                          | Dirty infusions, infected udders             | Aseptic infusions, eliminate infected cow                            |
|                                                                                                                                                                                                                                                                                                   |                                                        | <i>Bacillus</i> spp.                                    | Environmental                | Soil, water, air                             | Dirty infusions                              | Aseptic infusions                                                    |
|                                                                                                                                                                                                                                                                                                   |                                                        | <i>Trueperella/Arcanobacterium pyogenes</i>             | Environmental                | Teat injuries                                | Flies                                        | Fly control                                                          |
|                                                                                                                                                                                                                                                                                                   |                                                        | <i>Mycoplasma</i> spp.                                  | Contagious                   | Infected udders                              | Milking time                                 | Milking time hygiene, segregation and culling                        |

1 – DCT, dry cow therapy; 2 – IMI, intramammary infection