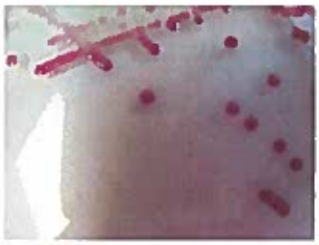
Penn State **Extension**

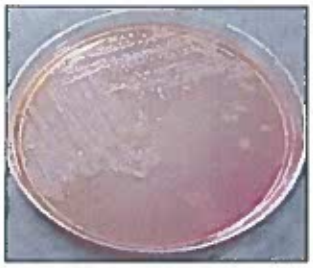
Quad Plate: Easy Identification Guide

Gram-negatives

STEP 1: Are the colonies…

Bright Pink or **Off-White**





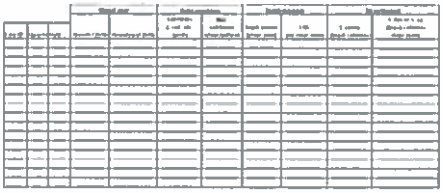
Bright pink colonies indicate a coliform type of bacteria

Coliforms (*E. coli*, *Klebsiella* spp., *Enterobacter* spp.)

Off-white colonies indicate a non-coliform type of bacteria

Non-Coliforms (*Serratia, Pseudomonas, Proteus*)

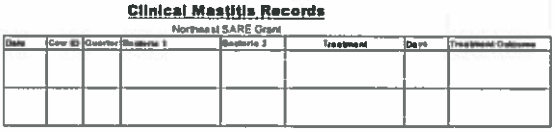
Step 2: Record on identification sheet colonies as either coliform or non-coliform



E. coli- Bright pink colonies, Small, Dry

Klebsiella spp. - Bright pink colonies, Larger, Wet, "snotty" looking

Step 3: Record bacteria on treatment sheet



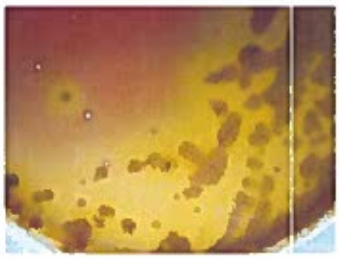
Streptococci

STEP 1: Are the colonies...

Esculin Positive or **Esculin Negative**

Black colonies with NO zone of clearing (hemolysis) indicate they are esculin positive colonies

Esculin positive bacteria (*Strep uberis*)



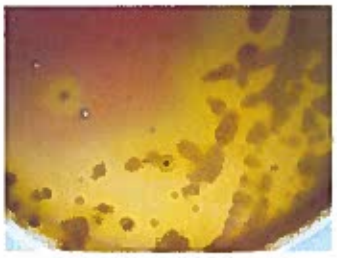
Black colonies with a zone of clearing around them indicate esculin negative types of bacteria

Esculin negative bacteria (*Strep agalactiae, Strep dysgalactiae*)

Step 2:

Record on identification sheet colonies as either esculin negative or esculin positive

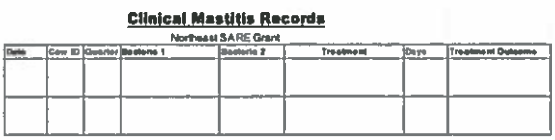
Esculin positive colonies are *Strep uberis*



Esculin negative colonies are either *Strep dysgalactiae* or *Strep agalactiae*

Step 3:

If Esculin negative colonies are present use "All Bacteria" sheet to determine bacterial species, otherwise record colonies as *Strep uberis* on treatment sheet



Clinical Mastitis Records

Northeast SARE Grant

Date	Cow ID	Quarter	Bacteria 1	Bacteria 2	Treatment	Days	Treatment Outcome

Staphylococci

STEP 1: Are the colonies…

Black with no clearing around them **or** **Black with clear zones (hemolysis)**

Black colonies

Coagulase negative Staphylococci (CNS)

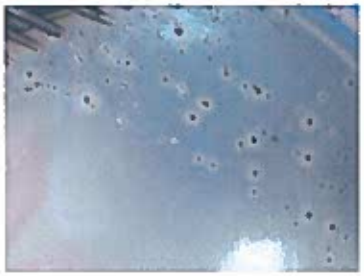
Black colonies with a zone of clearing around them indicates *Staph aureus* SUSPECT colonies

***Staph aureus* SUSPECT colonies**

Step 2:

Record on identification sheet colonies as either CNS or *Staph aureus* suspect

CNS



***Staph aureus* SUSPECT**

Step 3:

If *Staph aureus* SUSPECT colonies are present use "All Bacteria" sheet to determine bacterial species, otherwise records colonies on treatment sheet as CNS

Clinical Mastitis Records

Northeast SARE Grant

Date	Cow ID	Quarter	Bacteria 1	Bacteria 2	Treatment	Days	Treatment Outcome

All Bacteria (blood agar)

Part 1: If you saw growth on Gram-negative quad, you should also see growth on blood quad

Coliforms

Large, grey/off white colonies, wet, "snotty" looking

Non-Coliforms

Proteus – swarms plates

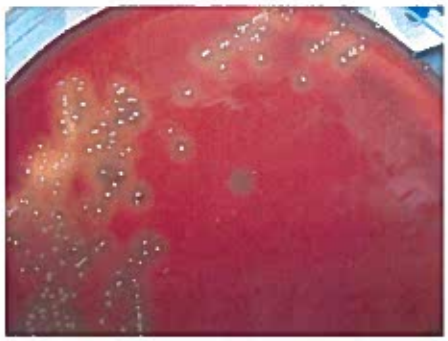
Pseudomonas – Looks similar to coliforms, smells like grapes

Strep dysgalactiae, Strep uberis

Small, grey/off white colonies

*No HEMOLYSIS

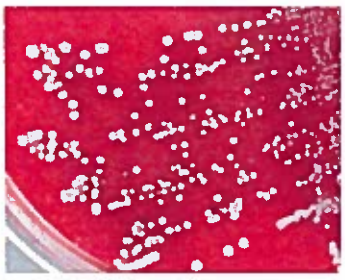
Strep agalactiae SUSPECT



Small, grey/off white colonies

**<u>HEMOLYSIS</u>

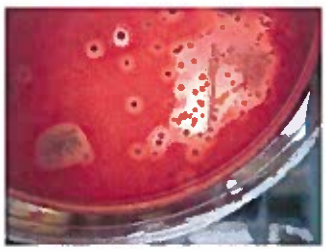
Staph spp. (CNS)



Larger, white/cream/yellow colonies

*No HEMOLYSIS

Staph aureus SUSPECT



Larger, white/cream/yellow colonies

**<u>HEMOLYSIS</u>