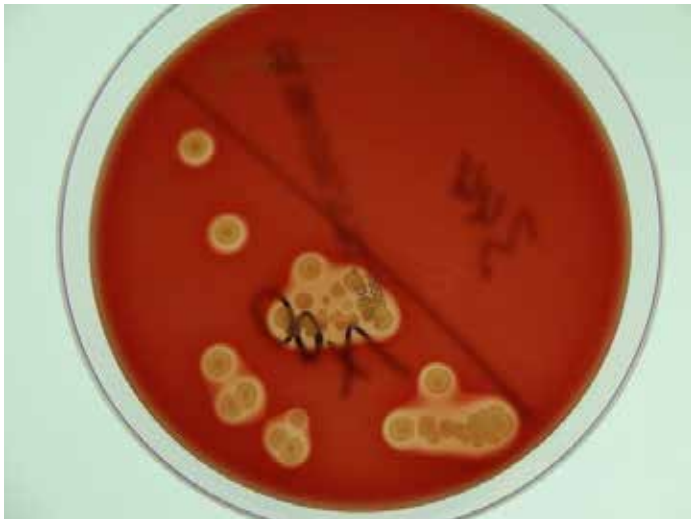
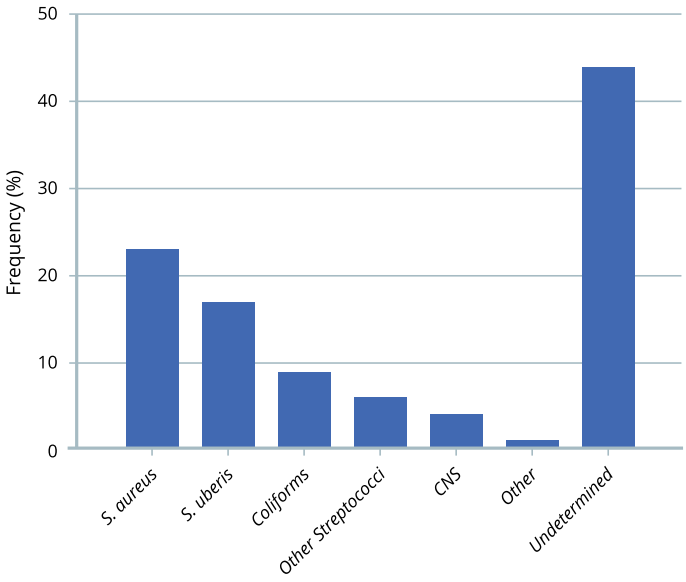
FarmLab
DIAGNOSTICS

MILK PATHOGEN TESTING



We use both traditional bacterial culture methods and modern PCR techniques to identify mastitis causing organisms in milk. In addition we carry out antimicrobial sensitivity testing to aid in the selection of treatments for cases of mastitis.

Frequency of isolation of the major mastitis pathogens from cases of clinical mastitis.



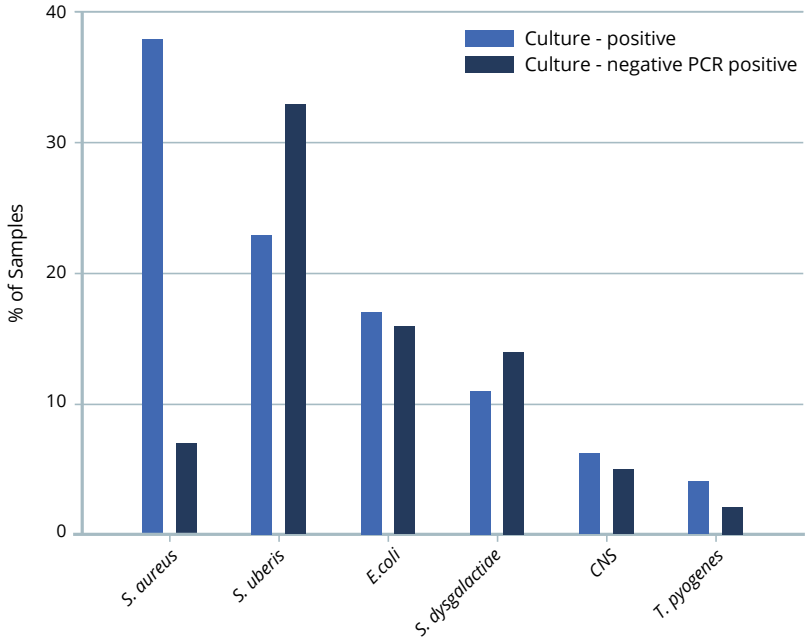
S. aureus and S. uberis are two of the most common isolates in Irish dairy cattle. [1]

MILK SAMPLING PROCEDURE

- Samples should be taken and posted early in the week to prevent samples being held in the post over a weekend.
- Use sterile vials or tubes for sampling (15-20ml capacity).
- Label Tubes prior to sampling (date, farm, cow, quarter).
- Clean Teats:
  - Using a dry paper towel brush loose dirt from the teat and udder.
  - Grossly dirty teats should be washed and dried thoroughly.
- Forestrip:
  - Discard a few streams of milk from the teat.
- Pre dip all quarters with an appropriate product and allow 30 seconds contact time.
- Dry teats thoroughly with a paper towel.
- Alcohol Scrub:
  - Begin with the teats at the far end of the udder, scrub teats vigorously with alcohol swabs.
  - Use as many swabs as necessary to clean the teats - teat ends should be scrubbed until no more dirt appears on the swab or is visible on the teat end.
  - A single swab should not be used on more than one teat.
- Sample collection:
  - front and back teats are a lot easier so change to begin sample collection with the back teats, moving on then to the front teats.
  - Remove the cap from the sample container, but do not leave the cap down. Always keep the open end of the cap facing downwards.
  - Hold the sample tube at a 45° angle to help prevent falling dirt entering the sample tube.
  - Collect one to three squirts of milk and immediately replace and tightly secure the cap.
- Teat dip cows after sampling with an appropriate product.
- Store samples immediately in a refrigerator at 4°C:
  - Samples should be posted on the same day as they are taken. Samples which will not reach the lab the next day should be frozen until they are ready to be transported. Sample containers should be placed in a sealed ziplock bag before being placed in outer packaging.

MASTITIS TESTING IN DAIRY CATTLE USING REAL TIME PCR

Distribution of mastitis pathogens in bacterial culture (BC) - positive and BC - negative/PCR - positive samples.



A recent study in Ireland[2] has shown that a mastitis pathogen was not detectable in approximately 30% of samples analysed by traditional bacterial culture. The same paper also found that "a mastitis pathogen was detected in significantly more samples by PCR than traditional culture".

This was especially significant for the detection of *Streptococcus uberis.*

Predominant and additional pathogens detected by PCR in bacterial culture-negative samples

PATHOGEN	PREDOMINANT PATHOGEN	ADDITIONAL PATHOGEN
Staphylococcus Aureus	3	2
S Streptococcus Uberis	14	2
Escherichia Coli	7	3
Streptococcus Dysgalactiae	6	3
CNS	2	3
Trueperella Pyogenes	1	0
Other	1	2
Total	34	15

CNS - Coagulase-negative staphylococci

Streptococcus uberis is becoming an increasingly significant cause of elevated SCC on farms. Accurate diagnosis facilitates correct management and treatment planning by veterinary practitioners.

[1] O. M. Keane, K. E. Budd, J. Flynn, et al. Pathogen profile of clinical mastitis in Irish Milk Recording Herds reveals a Complex Aetiology. Veterinary Record published online May 21, 2013.

[2] O. M. Keane, K. E. Budd, J. Flynn, et al. Increased detection of mastitis pathogens by real-time PCR compared to bacterial culture. Veterinary Record published online August 23, 2013.

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Gateway to Animal Health

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