



SCC DIAGNOSTICS TOOL BOX



W-MP-4: Teat End Condition Scoring (Neijenhuis System)

The health and integrity of teats and streak canals is positively correlated to udder health and the incidence of mastitis. One sign of a reduction in teat end integrity is formation of excessive callus known as hyperkeratosis. Seiber and Farnsworth were the first to identify teat end hyperkeratosis and establish a teat end scoring system. Scoring systems have been developed to help standardize the quantification of teat end conditions as an aid in identification of cause and effect factors and to help direct proper corrective action. Recent studies have associated an increase in teat end hyperkeratosis with a greater incidence of new intramammary infections.

The teat scoring systems described in this worksheet are adaptations of those suggested by the NMC Teat Club International (TCI) group and are widely used in the dairy industry. One is an adaptation of Mein et al., 2001 and Goldberg et al., 1994 using a single integer numerical system of 1-5. The other was derived from the work of Neijenhuis using a numerical full and half scores. Each scoring system has advantages and disadvantages. The Mein approach is simpler requiring less observational skill, and is slightly easier to do. It is an efficient way to assess general teat end health. Whenever greater than 20% of teat end score are score 3 or greater further evaluation is necessary. The Neijenhuis based system is thought to be more sensitive measure of subtle teat end changes and thus may be more accurate for use in herds where follow-up teat end condition evaluations are anticipated. It requires slightly more observation skill and more detailed recording. The rings with smooth surfaces are scored as integers or whole numbers and the score can be 1, 2 or 3 and that was based on how pronounced the ring was raised above the base of the teat ends. The rings with cracked appearance can have a number of 1.5, 2.5, 3.5 or 4.5 and that was based on the same level of raised rings. The score of 4 was omitted since the teat with such pronounced ring will also have some level of cracking or roughness. Since all four teats on every cow are scored and recorded greater inferences can be made from this scoring system's evaluation relative to such associated issues like cluster alignment, etc.

The research group led by R. Dingwell from University of Guelph, Guelph, Ontario Canada determined that cows with cracked teat ends at the end of lactation were 2.5 times more prone to develop mastitis in the subsequent lactation than cows with smooth teat ends void of cracking. Enumerating the character and level of cracked teat ends in a herd, will enable a prediction of how prone a herd is for mastitis and be able to suggest corrective action.

Accurate evaluation of teat condition depends on achieving a representative sample. To assure that the data collected properly represents an entire herd and if a herd is made up of less than 100 cows, score all quarters on all cows. For herds larger than 100 cows, randomly score at least 80 cows representing all stages of lactation or at least 20% of the herd whichever number is largest (Reinemann et al., 2001). Cows from early, mid and late lactation need to be scored, as well as, a representation of first and later lactation animals. Scores on a quarter basis will allow you to enumerate the average and distribution of teat end score by quarter. These analyses can be very useful especially if differences are noted on specific quarters compared to other quarters. This information can be very useful for identifying underlying causes for the damage.

When scoring of a herd and follow-up scoring at various intervals is requested, assign a scorer and make sure that same scorer scores the same herd at each of the subsequent scorings. Even if a standardized system is used, each scorer may score teats slightly different than the next scorer and therefore the same scorer should perform all score activities on the same herd.



TEAT CONDITION SCORE

Score

0



CRACKS
Teats with cracks are scored
a half point higher.
i.e. 1.5 or 3.5

1



Score

1.5

2



2.5

3



3.5

Cracked teat ends have been associated with incidents of mastitis. Quantification of cracked teat ends in a herd maybe important to help improve overall udder health.



4.5



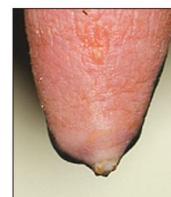
TEAT SHAPES



ROUND - 1



INVERTED / FLAT - 2



TAPERED - 3

References:

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