

## ABNORMAL MILK - RELATIONSHIP OF LEUCOCYTE COUNT

(Somatic Cell Count)

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The number of leucocytes or somatic cells in milk is affected by many factors. Normal milk from healthy animals contains both leucocytes and epithelial cells from the cows udder. During routine laboratory analysis of milk samples, no attempt is made to distinguish between epithelial cells and leucocytes and because of this the counts are reported as somatic cell counts. Epithelial cells comprise only a relatively small part of the somatic cell count and large changes in this count are a reflection of changes in the number of leucocytes present.

The somatic cell count of normal milk tends to increase as the age of the cow increases. Healthy first calf heifers are expected to have an average count of 300,000 cells whereas older cows in their sixth or seventh lactation may average as many as one million cells per milliliter. There is at least one research report indicating that the increased count is not due to a physiological change in the udder but is due to an increased incidence of low-grade or non-clinical infection in older cows.

Stage of lactation is another factor affecting somatic cell count. Colostrum is considered as abnormal milk and is also very high in cell count. Within two to three days after calving, the somatic cell count of the milk will be within acceptable limits and usually by this time the composition also has returned to normal. It is therefore important that early lactation milk be excluded from the bulk tank to help control the somatic cell count of the mixed herd milk. There is also a tendency for the somatic cell count to increase near the end of lactation when the level of milk production has greatly decreased. One theory proposed to explain this occurrence is that the healthy udder tends to produce a constant number of somatic cells throughout the lactation. When milk production starts decreasing, the number of cells per milliliter of milk increases and higher counts are reported for the late lactation milk.

When cows are milked twice daily, there is a tendency for the somatic cell count of the evening milk to be slightly higher than that of the morning. The difference in the counts is very small and would have no significant effect on the count of pooled milk.

Although all of the preceding factors have some effect on the somatic cell count of milk, mastitis has a far greater effect on the count than any other factor. No single constituent of milk changes as much as does the somatic cell count when an udder becomes infected with a mastitis microorganism. When mastitis is present in a quarter the somatic cell count of the milk from the infected quarter may be in the tens of millions per milliliter. Milk from cows having mastitis must be withheld from the bulk tank in order to meet the somatic cell count standard of not more than one and one half million cells per milliliter.