

Symptoms of Mastitis

Clinical mastitis can present itself in a wide degree of severity of symptoms which can range from mild to moderate to severe. The degree of illness and the symptoms present will depend on many factors, such as the nutritional or immune status of the cow, which pathogen is responsible for the inflammation, and a range of environmental factors such as cleanliness, humidity and ambient temperature. Moderate to severe clinical cases can be very painful and unpleasant for the cow.

The most obvious symptoms of clinical mastitis are abnormalities in:

- The **udder** such as swelling, heat, hardness, redness, or pain; and
- The **milk** such as a watery appearance, flakes, clots, or pus.

Other symptoms, depending upon the severity of the illness and how systemic it has become, can also include:

- A reduction in milk yield.
- An increase in body temperature.
- The lack of appetite.
- Sunken eyes.
- Signs of diarrhoea and dehydration.
- A reduction in mobility, due to the pain of a swollen udder or simply due to feeling unwell.

In severe cases of acute, clinical mastitis - in many instances caused by *E. Coli* infections - the cow may appear very ill indeed. In contrast, **subclinical mastitis** can result in few symptoms and may only be detectable in a higher than normal **Somatic Cell Count**.

Most of the indicative symptoms, such as the swelling, heat, redness and the milk abnormalities are a result of an immune response in the cow, the changes in milk constituents in particular caused by infection-fighting white blood cells attempting to eliminate the infective organisms which may further be responsible for producing toxins which damage the milk-producing glands within the udder, and can be responsible for permanent udder damage in some cases.

In some instances the cow's immune response is sufficient to efficiently generate a self-cure for the illness, usually in mild cases of the disease where the cow is strong and has a good immune response. Other cases can result in more severe illness, perhaps even leading to loss of a quarter or more of the udder, the loss of body tissue due to gangrene and in worse case situations, death.

Changes in milk composition even in cows with subclinical mastitis can result in significant changes in the protein composition in milk. While overall protein content may be unaffected, changes in the *types* of protein present may be affected by the leaching of (low-quality) blood serum proteins into milk; **casein**, an important protein found in healthy milk can be significantly reduced in sub-mastitic cows, and a further complication is that casein is closely linked with **calcium** levels in milk production.

An overall effect of the chemical alterations in milk mean that the pH of milk, normally around 6.6, can increase to 6.8 or 6.9 in mastitic cows. The presence of certain blood enzymes in milk from mastitic cows can affect the taste of milk and its ability to be made into other dairy products such as cheese or yoghurt.