

# Aromabiotic

## Aromabiotic

Is a carefully balanced mixture of Medium Chain Fatty Acids (MCFA) with unique physiological and immunological properties; developed by Nuscience

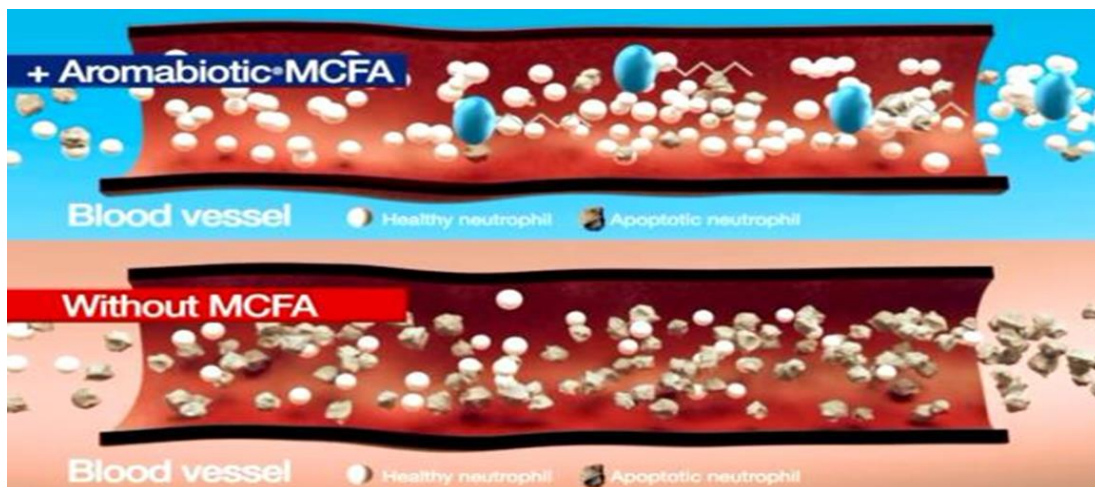


Supplementation with *Aromabiotic*, supports the dairy cow by improving the rumen fermentation and the immune status.

The improved immunity has been demonstrated by research done by Prof. S. De Vliegher and Dr. S. Piepers at the University of Ghent. Trials have shown that supplementation with *Aromabiotic* increases significantly blood and milk neutrophil viability and thus improves the immune status in both heifers and multiparous cows.

## High quality neutrophils:

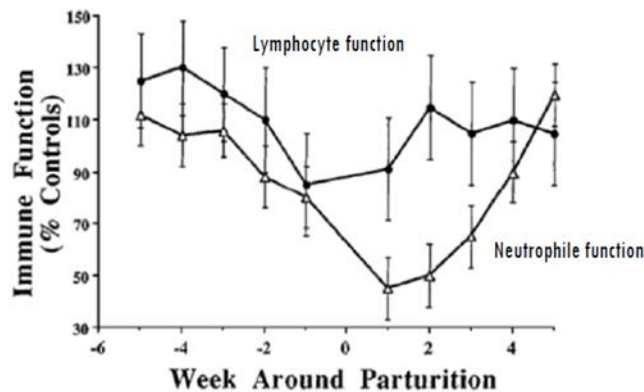
Means less apoptosis or programmed cell death of neutrophils (also known as white blood cells), resulting in a better 1<sup>st</sup> defence against infection.



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Good quality neutrophils are very important around calving, since every cow suffers from an immune-suppression or lowered immune response at this time.

This lowering of the immune system is nature's way to prepare for calving, allowing for the foetus and placenta to enter the birth passage. During this period the neutrophil function can decrease by 25-40%.



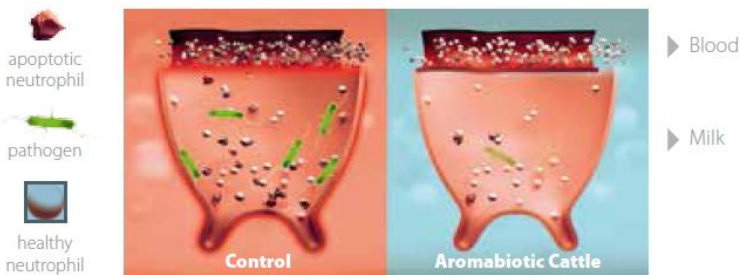
Neutrophil function decrease

Goff and Horst, 1997

This is the reason there is a greater risk of infection and disease over the transition period. Problems such as milk fever, retained cleanings, metritis, LDAs, and mastitis are commonly seen.

Reducing the severity of this immune-suppression will aid the cow in her struggle against infections in early lactation.

**A lower percentage of neutrophil apoptosis\*** results in a better immune status.



\*(programmed cell death)

Trial work by Nuscience has shown that supplementing the diet with Aromabiotic for at least 3-4 weeks, increases the viability/effectiveness of the neutrophils. This was investigated by determining the percentage of apoptotic neutrophils in blood and milk (apoptosis = programmed cell death). A lower level of apoptosis results in a higher overall viability of the neutrophils which in its turn means an improved immune status.

A healthy immune system is the best guarantee for preventing and controlling infections.

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## What is Inflammation?

**“Essentially all cows experience some degree of systemic inflammation in the days after parturition.”** (Bradford et al., 2015)

Inflammation is the first step in the healing or repair process that helps the body fight off bacteria, pathogens and their toxins, and repair damaged tissue. The neutrophils appear at the site first and work to engulf and destroy the pathogen or bacteria

- **Acute inflammation.** It's a short-term process where the immune system sends white blood cells to the site of the injury or invasion of the pathogen to initiate the healing process. This response should be rapid and robust, appearing within minutes or hours following activation of an immune response.
- **Chronic inflammation** occurs when the immune response fails to eliminate the cause of the inflammation. Chronic inflammation can last for weeks, months or longer.



When an animal is sick, feed intake will decrease. At the same time the immune system will redirect nutrient, utilised for growth and milk production, to protection.

## Reproduction:

It is critical for dairy cows to have an effective immune response after calving in order to eliminate pathogens that enter the reproductive tract during the birthing process. Prolonged or chronic inflammation can result in decreased reproductive performance.

## Mammary health:

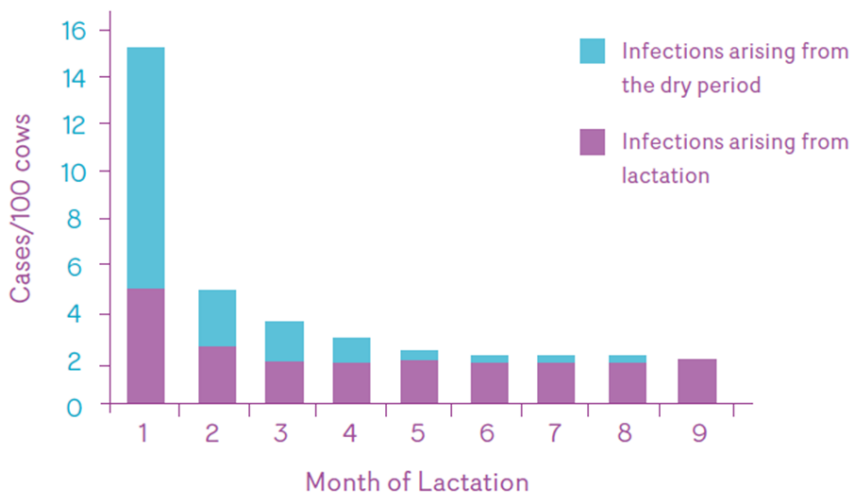
Somatic cell count is a marker for chronic inflammation in the udder. By lowering chronic inflammation in the animal, you can lower somatic cell count, allowing more energy and nutrients to be used for milk production instead of fighting inflammation.

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## Benefits of improved immunity:

- Fewer cases of infections requiring antibiotic treatment
- Less inflammation means maximising milk production
- Easier calving period for animals and farmers
- Less infections result in quicker return to positive energy balance and increased fertility

Whilst it is well known that mastitis cases in the first 30 days after calving have a high probability of being caused by an infection picked up during the dry period, mastitis later in lactation may still be a result of a dry period infection.



Green et al (2002) reported that in some herds over 60% of all clinical mastitis during lactation can be traced to bacterial infections that occurred in the dry period (see graph). Also the risk of picking up new infections is 10 times greater during the dry period than throughout lactation.

“It has been demonstrated that heifers that develop mastitis in the first 30 days after calving produce less milk and are likely to be less profitable over their lifetime. Given the substantial costs associated with rearing heifers until first calving, and given breakeven point is not achieved until the second lactation, it is imperative that mastitis is prevented in the first lactation- “

*Catherine McAloon Irish Veterinary Journal Dec 2018*

**Common problems are often different ways of the cow trying to tell you the same thing –**

**Her immunity is compromised.**