



SELISSEO®, THE INNOVATIVE ORGANIC SELENIUM-BASED ANTIOXIDANT

# EVEN IN CHALLENGING CONDITIONS...



## ... PERFORMANCE WILL BE SUPPORTED



### Selisseo®, helping animals fight oxidative stress

The only hydroxy-selenomethionine on the market, fully delivering the benefits of organic selenium for better reproduction performance, enhanced stress resistance and immunity, optimal growth and higher quality meat and milk.



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**ADISSEO**  
A Bluestar Company

# SELISSEO® HELPS RUMINANTS FIGHT OXIDATIVE STRESS

Dairy cows and calves  
face many kinds of nutritional, environmental,  
health and technological stresses during their production life

Adequate selenium levels will ensure milk production with high quality standards.  
Selenium plays a role in reproductive mechanisms, udder health as even calf health.

## SELISSEO®, THE INNOVATIVE ANTIOXIDANT

Selisseo® contains 100% hydroxy-selenomethionine,  
a pure and highly-available form of organic selenium.



# Selisseo®

## CALF



### HEALTH

Selisseo® allows selenium  
transfer from dam to calf,  
**promoting calf health.**

## COW



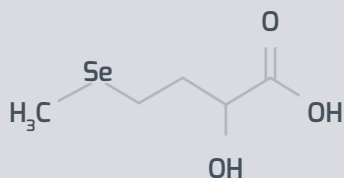
### REPRODUCTION AND MILKING

Selisseo® improves cows' reproductive performance and milk quality.

### Hydroxy-selenomethionine (OH-SeMet)

Selenium (Se) is an essential nutrient for life, with established requirement from 0.1-0.3 ppm to support basic functions. Although inorganic Se sources are commonly used as feed supplements, recent research have firmly confirmed that organic Se sources, specifically selenomethionine (SeMet) or hydroxy-selenomethionine (OH-SeMet), are much more easily metabolized.

Selisseo® (EU registration 3b814) is a pure source of OH-SeMet. At the 2014 SPACE exhibition in France, Selisseo® received the highest **3-Star Innov'Space Award**. This award recognizes new product innovation.



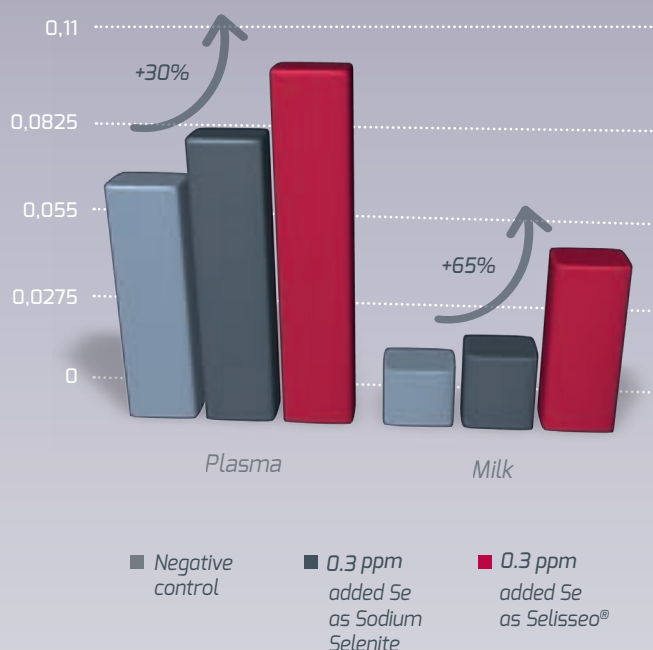
# THE ANTIOXIDANT FUNCTION OF SELENIUM

At cellular level, stress translates into increased production of oxidative species, upsetting the balance between prooxidants and antioxidants and damaging cell structures.

### Selenium, a key player in antioxidant defences:

Selenium is present in 2 amino acids: the storage form selenomethionine (SeMet) replaces regular methionine in proteins; the active form selenocysteine (SeCys) is found only in the catalytic site of several proteins called selenoproteins. Several of these selenoproteins are antioxidant enzymes.

Selisseo® significantly increases the selenium content of milk and plasma<sup>(1)</sup>.



**Selisseo® is the most efficient organic Se source** inducing both higher Se deposition and a higher SeCys content, thus providing animals with high antioxidant capacities.

All the results reported in this document are extracted from trials where Selisseo® was compared to another source of selenium. They should be considered as examples demonstrating the effect of Selisseo®.

<sup>(1)</sup> Trial conducted in China, Beijing Sino farm, 2016. More data are available on request.

# SECURING MILK QUALITY

## BY PROTECTING THE UDDER

**Selenium helps fight bacteria.**

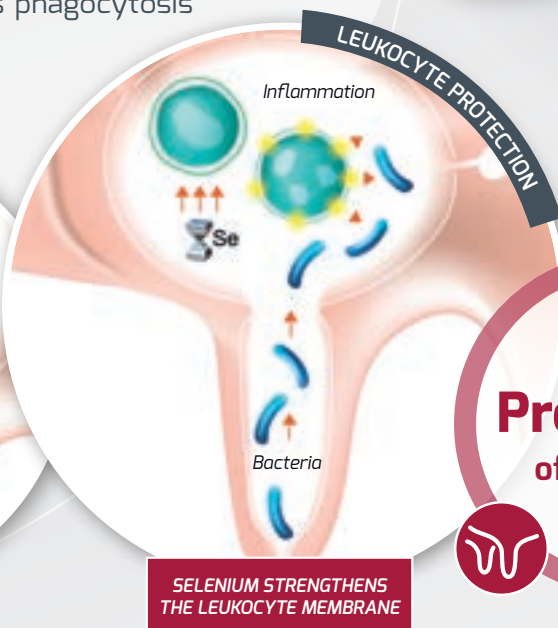
Mastitis is an inflammatory reaction of the mammary gland and in most cases it is linked to bacterial infections passing through the teat canal.

### SELENIUM AND LEUKOCYTE PROTECTION

The organism fights against this infection by triggering local inflammation. This consists in producing toxic substances. However, these substances weaken leukocytes which are essential to good immune defence. Selenium has a protective action since it strengthens the leukocyte membranes.

### ACTION OF LEUKOCYTES

While inflammation is the primary response to fight bacteria, leukocytes can also act directly against them through phagocytosis mechanisms. A good level of selenium increases phagocytosis efficacy.



**Protection  
of the udder**

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<sup>(1)</sup> Trial conducted in China, Beijing Sino farm, 2016

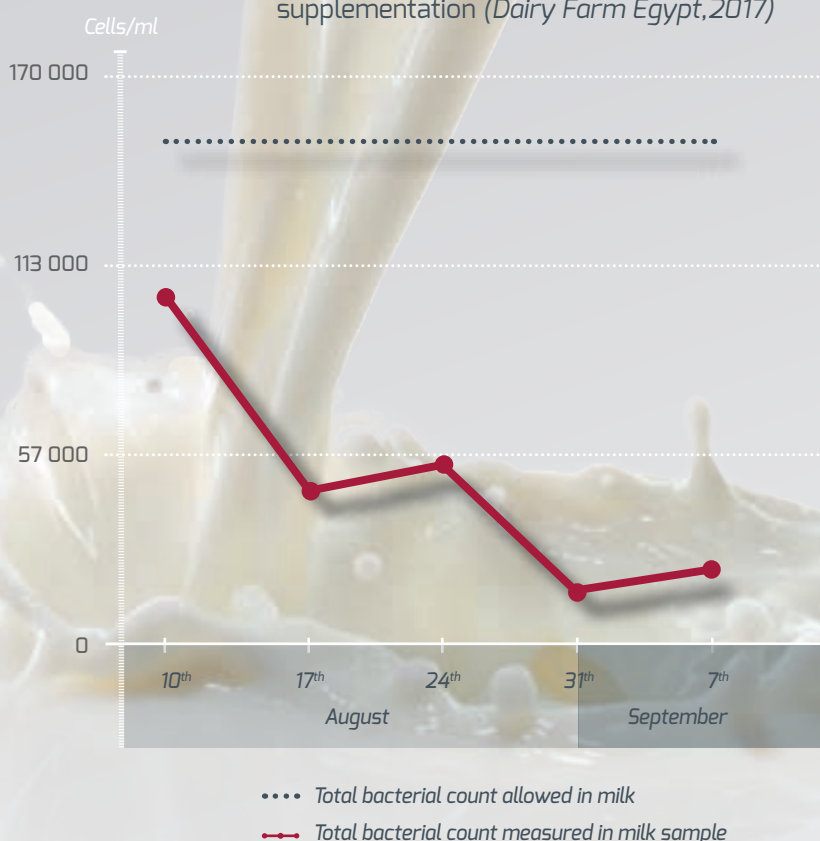
<sup>(2)</sup> Observations from a dairy farm, Egypt, 2017

More data are available on request.

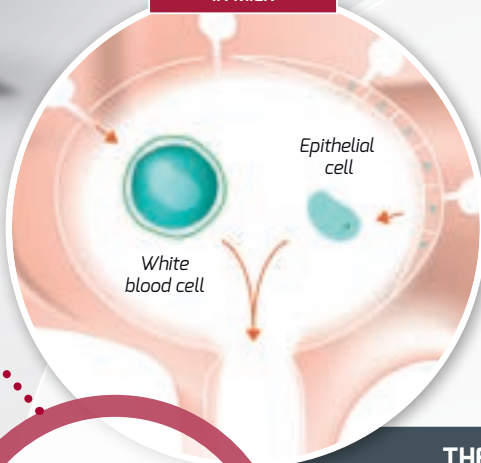




Total bacterial count in milk after Selisseo® supplementation (Dairy Farm Egypt, 2017)



#### ORIGIN OF CELLS IN MILK



## BY LIMITING SOMATIC CELLS

Selenium protects the udder and limits the number of somatic cells in milk.

Somatic cells can be of:

- **Glandular origin:**  
epithelial cells from mammary tissue regeneration
- **Blood origin:**  
white blood cells, which are the body's specific defence cells

## Reduction of somatic cells

### THE SOMATIC CELL COUNT (SCC)

The SCC is a good indicator of udder health status.

In most cases, somatic cells in milk are white blood cells. They stem from mastitis, which can either be clinical mastitis (visible impact on cow health) or subclinical mastitis (no external clinical sign, but a high level of somatic cells). A healthy cow has less than 150,000 cells/mL of milk.

Selisseo® supplementation has a positive impact on the SCC<sup>(2)</sup> thus guaranteeing udder health.

Moreover, it is known that there is a correlation between the herd mean plasma selenium concentration and the level of SCC in the tank. By increasing the level of Se in plasma<sup>(1)</sup>, Selisseo® contributes to eliminating somatic cells.

# IMPROVING REPRODUCTIVE PERFORMANCE

## BY ENHANCING FERTILITY & POST-GESTATION MECHANISMS

Selenium acts throughout the reproduction cycle, from insemination to gestation.

### FROM INSEMINATION TO GESTATION

#### Fertility

Fertility of a dairy cow is highly related to its previous parturition. Placenta retention (also called metritis) after birth will negatively impact future fertility. Selenium has a positive action on uterus contraction and the transport of sperm in the womb. It also reduces the occurrence of metritis.

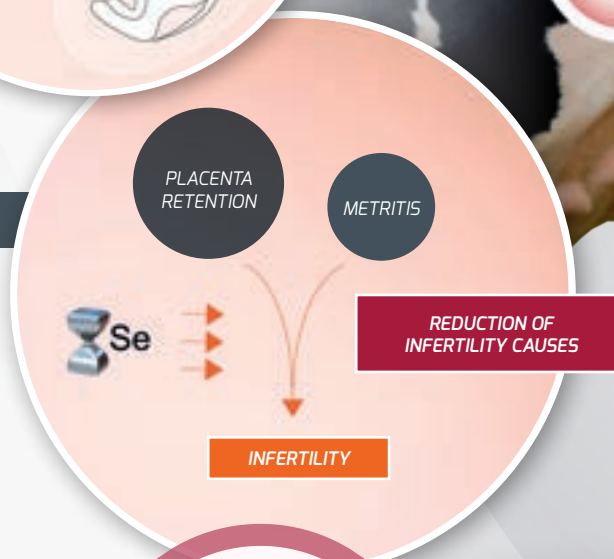
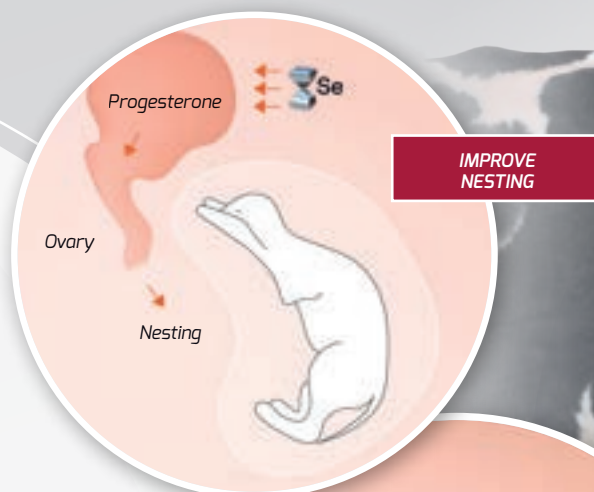
#### Gestation

Progesterone secreted by the corpus luteum helps maintain gestation. By favoring progesterone secretion, Selenium could help reduce abortion.

#### Preparation for the next gestation

Selenium supplementation during the lactation period will allow dairy cows to get better body conditions for the next gestation. Dairy cows fed Selisseo® (0.3 ppm) from mid to late showed a better selenium status and antioxidant capacity<sup>(1)</sup> compared with a negative control:

- **+30%** plasma Se content
- **+65%** milk Se content
- Higher antioxidant capacity: **+37%** GPx\* activity





## BY PROMOTING CALF STATUS

**Organic Selenium is transferred from dam to calf.**

Only the organic fraction of the diet can be transferred to colostrum and milk.

### IMMUNITY AND HEALTH OF THE NEWBORN CALF

A trial showed that in-calf heifers fed Selisseo had a higher selenium concentration in their colostrum (**+44%** vs sodium selenite)<sup>(3)</sup>. In addition, the calves born of these dams had a greater plasma selenium content (**+10%** vs sodium selenite)<sup>(3)</sup>.

**Supplementing cows with Selisseo® during the gestation period will favour selenium transfer to calves.** This will have immunity and health benefits for the newborn calves.

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<sup>(1)</sup> Trial conducted in China, Beijing Sino farm, 2016  
<sup>(2)</sup> Trial conducted in the UK, University of Reading, 2016  
More data are available on request.



# USE SELISSEO® IN YOUR FEED! IT'S RELIABLE, STABLE, SAFE AND EASY TO USE!



**Selisseo® can withstand extreme feed processing conditions** including high temperatures and pressures

**Selisseo® provides 100%** active OH-SeMet batch after batch

**Selisseo's consistent particle size** without fines allows safe and easy mixing into the feed, with low dust.

DESCRIPTION	Selisseo® 2% Se	Selisseo® 0.1% Se
Composition	<b>Active substance:</b> Hydroxy-selenomethionine (OH-SeMet) <b>Chemical formula:</b> $\text{CH}_3\text{-Se-(CH}_2\text{)}_2\text{-CH(OH)-COOH}$	
Carrier	Silica	Silica, Limestone fine
Appearance	Powder	Powder
Colour	White to light beige	White to light beige
Selenium Content	Min 2%	Min 0.1%
HMSeBA	Min 5%	Min 0.25%
Recommendations for Use	10-15 g/MT of feed*	200-300 g/MT of feed*
Packaging	20 kg box (400 kg/pallet)	25 kg bag (1000 kg/pallet)

\*Varies according to the regulations and country

**ADISSEO**  
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