

The Future of Selenium Nutrition

Selisseo® | 100% available pure OH-SeMet

Miami Herald

FLORIDA

What if you're abducted by aliens? This Florida insurance company has you covered

By Malena Carollo *Tampa Bay Times*

Updated April 6, 2019 1:25 PM



The Future of Selenium Nutrition

Selenium Insurance

Antioxidant support
during stress

SeMet Reserves

SeMet Source Matters

OH-SeMet is pure,
stable, reliable

Proof Under Stress

Lower oxidative stress,
lower SCC

Maintain milk yield

\$

What's the cost?

Essential Roles of Selenium

Antioxidant and Immune Support



- Boosts immune function
- Protects from oxidative stress

Productivity, muscle function



- Improves meat quality
- Prevents white muscle disease

Reproductive Health



- Enhances fertility
- Prevents RP
- Supports embryonic development

Performance under Stress

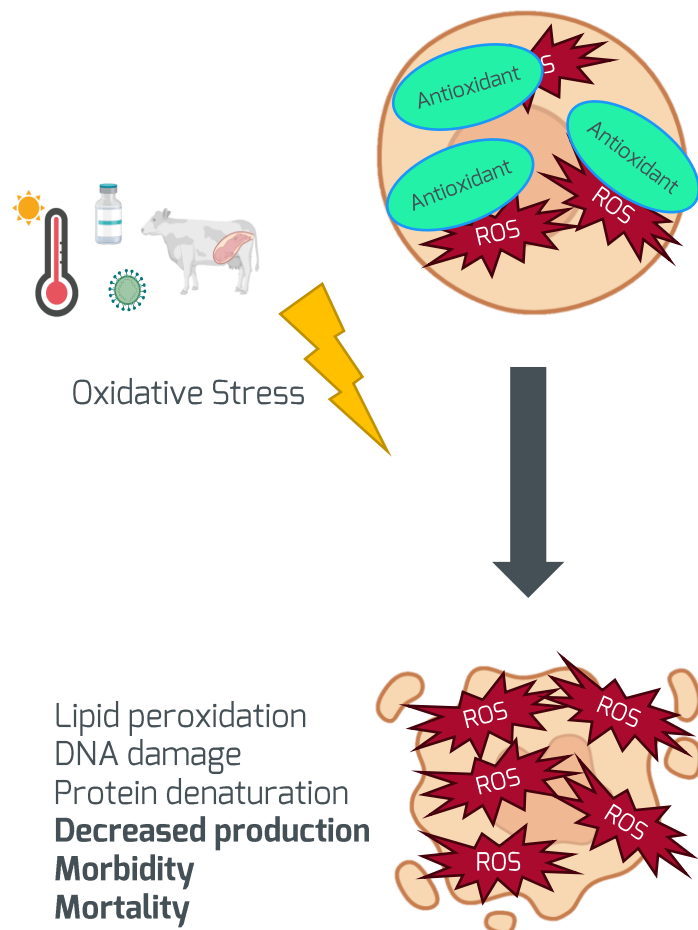


- Reduces risk of mastitis
- Maintain milk yield
- Lower morbidity

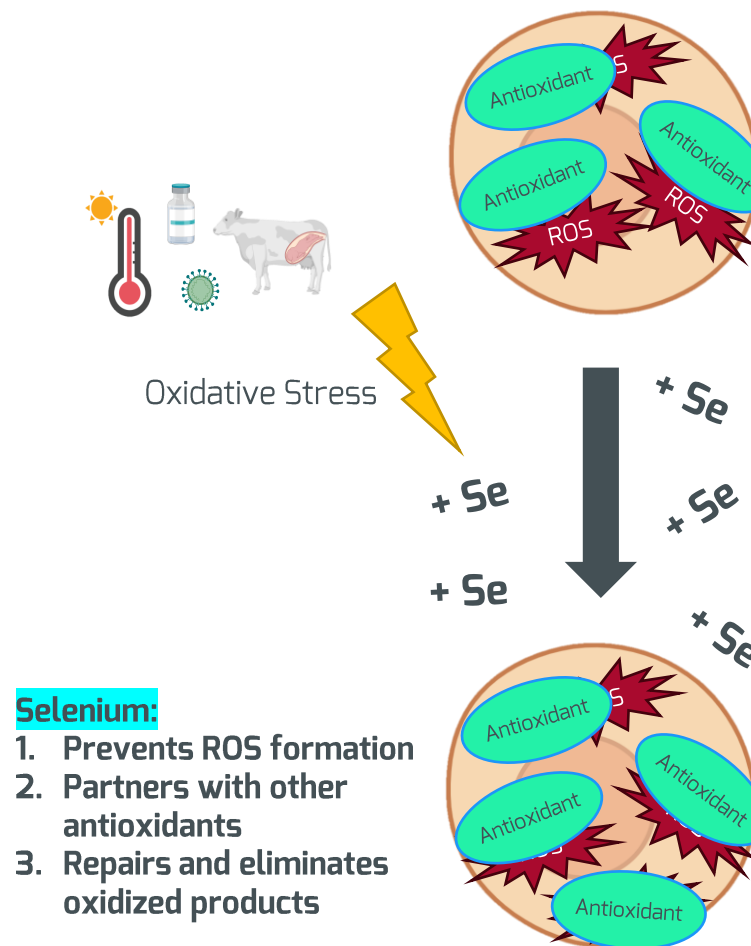


Selenium is Crucial for Antioxidant Defense

- - - Selenium



+ + + Selenium



Selenium Forms for Ruminant Nutrition

1st Generation

Inorganic

Sodium Selenite

- Mineral source
- From copper refining

2nd Generation

Organic

Se Yeasts

- Provide **SeMet**
- Yeast grown with Selenite in media
- Since 2003 for dairy

3rd Generation

Organic

Pure SeMet

- L-SeMet
- **OH-SeMet**
(only from Adisseo as Selisseo®)
- 100% Pure, chemically synthesized

Selisseo® | Hydroxy-Selenomethionine



Selisseo®

Unique



Stable



Save and
easy-to-use



Pure



Bio-effective



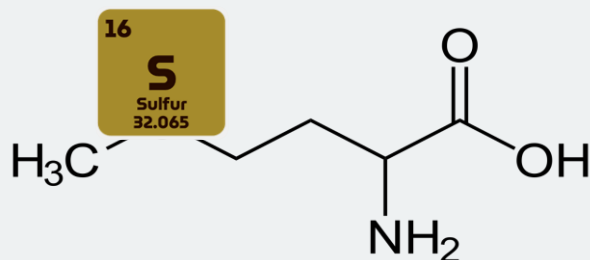
Reliable



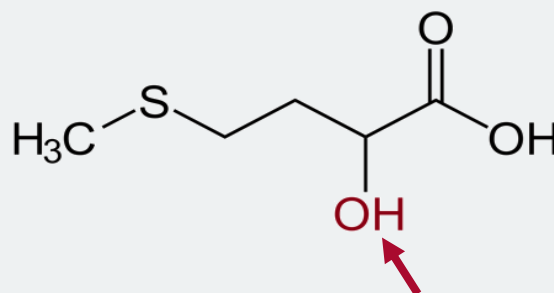
Since 2021 for dairy; Not a chelate, Se is part of the Met molecule; not bound to it



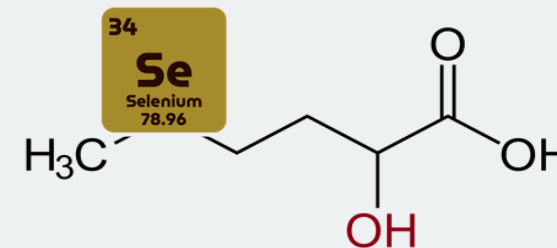
DL-Methionine



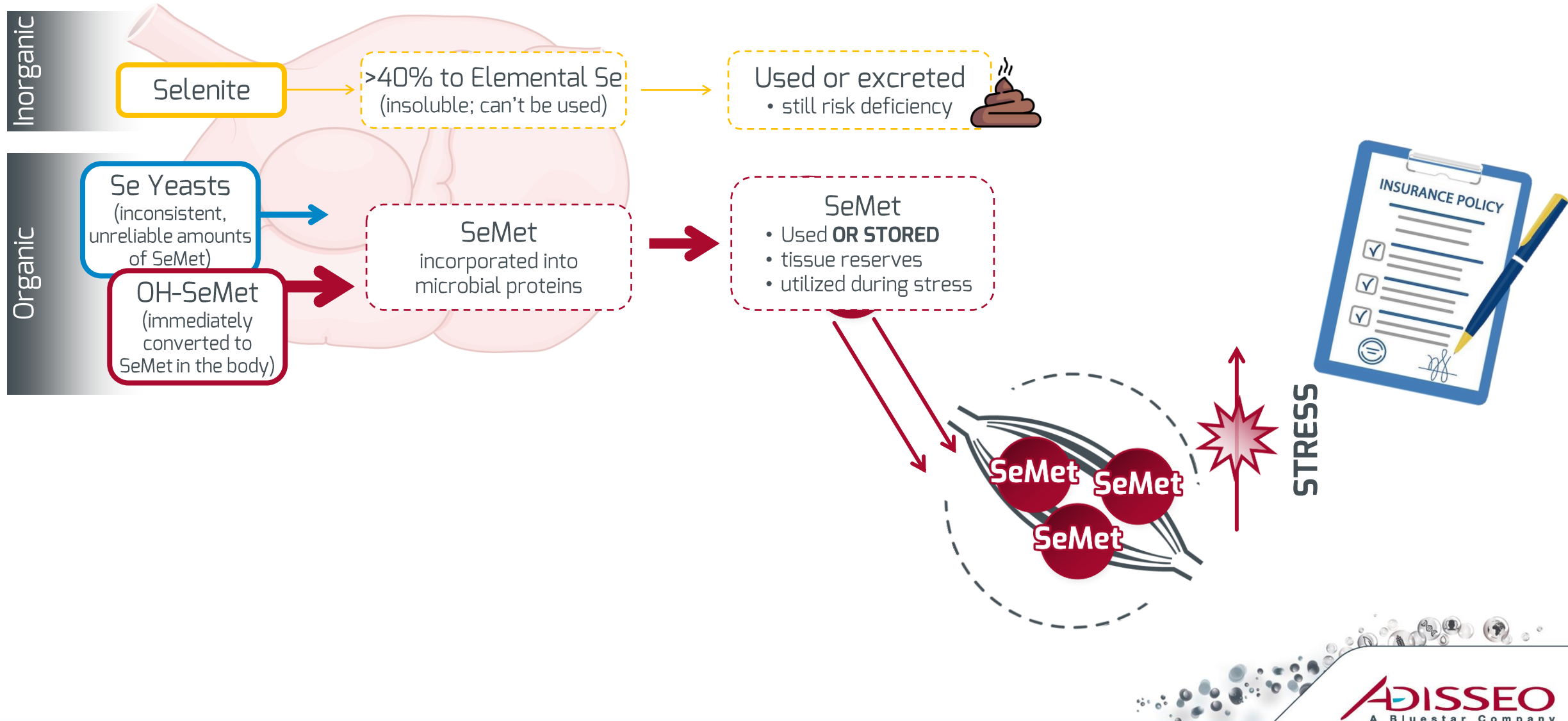
HMTBa



hydroxy-selenomethionine (OH-SeMet)

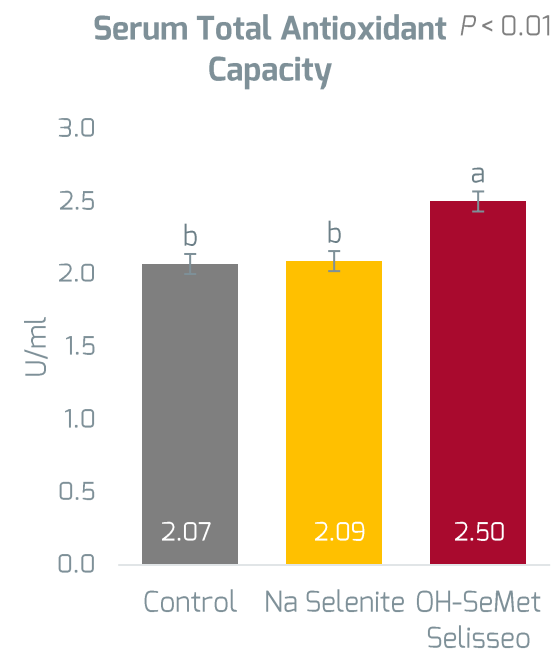
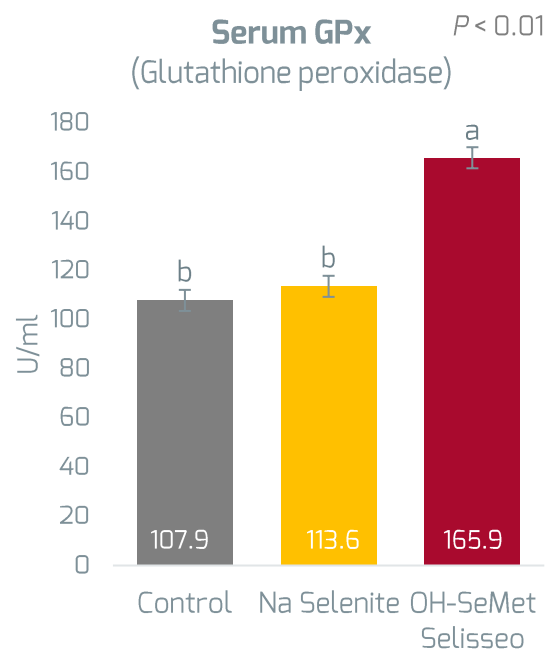
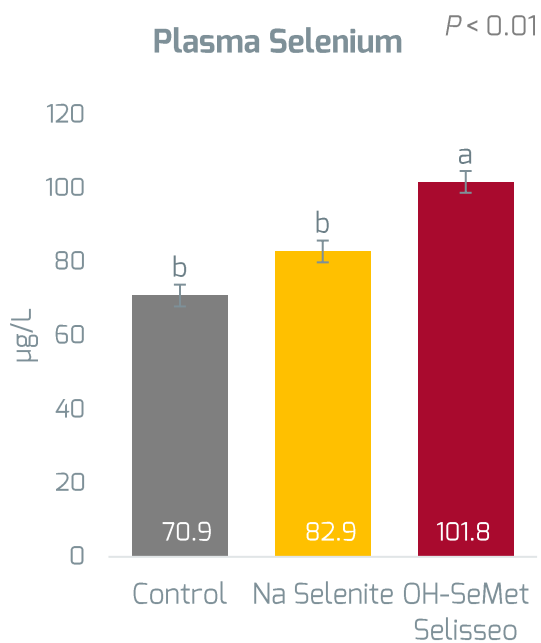


Antioxidant Insurance Policy: SeMet Storage



SeMet Source Matters

OH-SeMet Improves Se Status, Antioxidant Capacity – vs. Inorganic



Glutathione peroxidase (GPx)

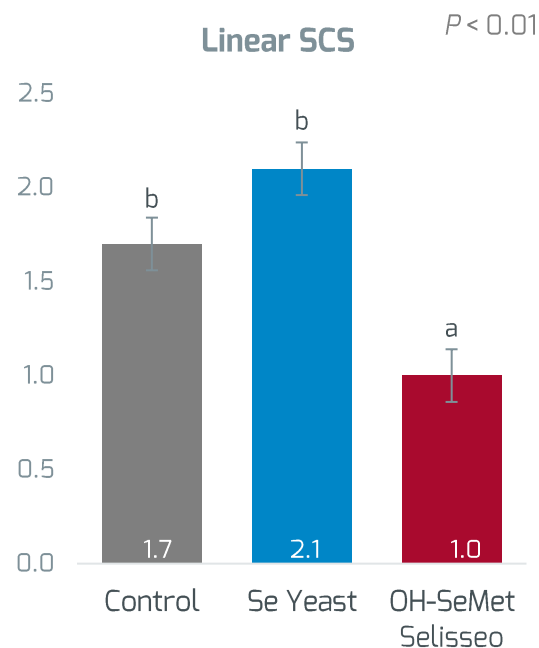
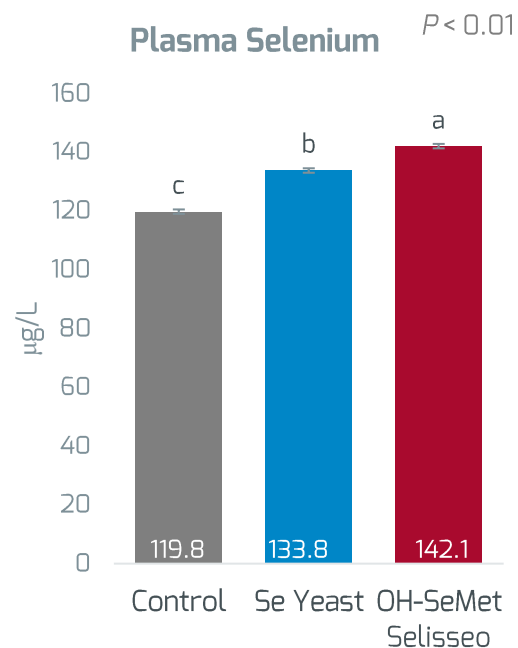
- enzyme that protects from oxidative stress
- neutralizes ROS
- contains Se

Total Antioxidant Capacity (T-AOC)

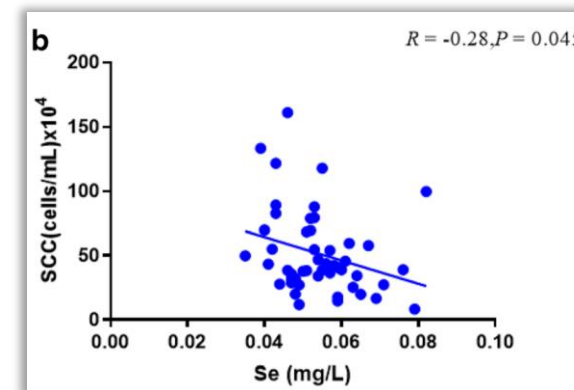
indicates ability to deal with oxidative stress

Added Se, mg/kg DM		
Control	Na Selenite	OH-SeMet/Selisseo
0	0.3	0.3

OH-SeMet Improves Se Status, Decreases SCS – vs. Se Yeast



Higher plasma Se = lower SCC



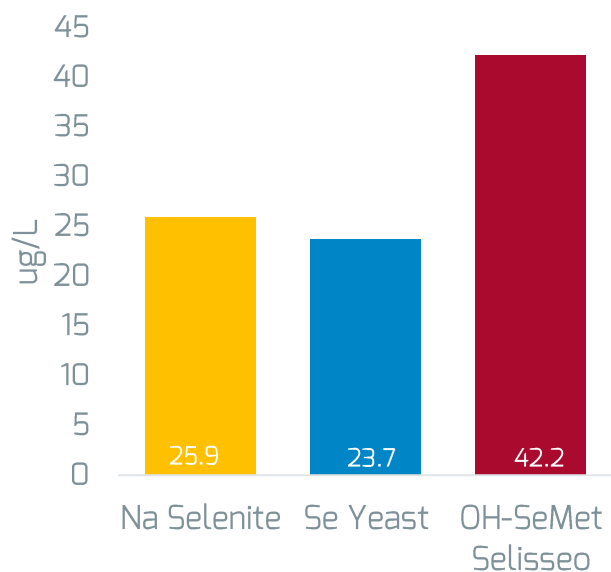
Wang et al., 2020

Added Se, mg/kg DM		
Control	Se Yeast	OH-SeMet/Selisseo
0	0.67	0.67

← Trial was for FDA approval for Selisseo in Dairy

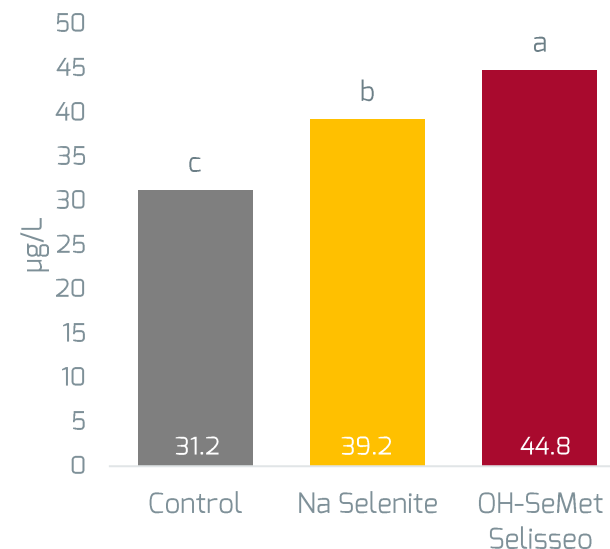
OH-SeMet Improves Se Status for the Calf

Colostrum Selenium



Added Se, mg/kg DM		
Na Selenite	Se Yeast	OH-SeMet/Selisseo
0.26	0.14	0.14

Calf Plasma Se at birth $P < 0.01$



Added Se, mg/kg DM		
Na Selenite	Se Yeast	OH-SeMet/Selisseo
0.3	0.3	0.3

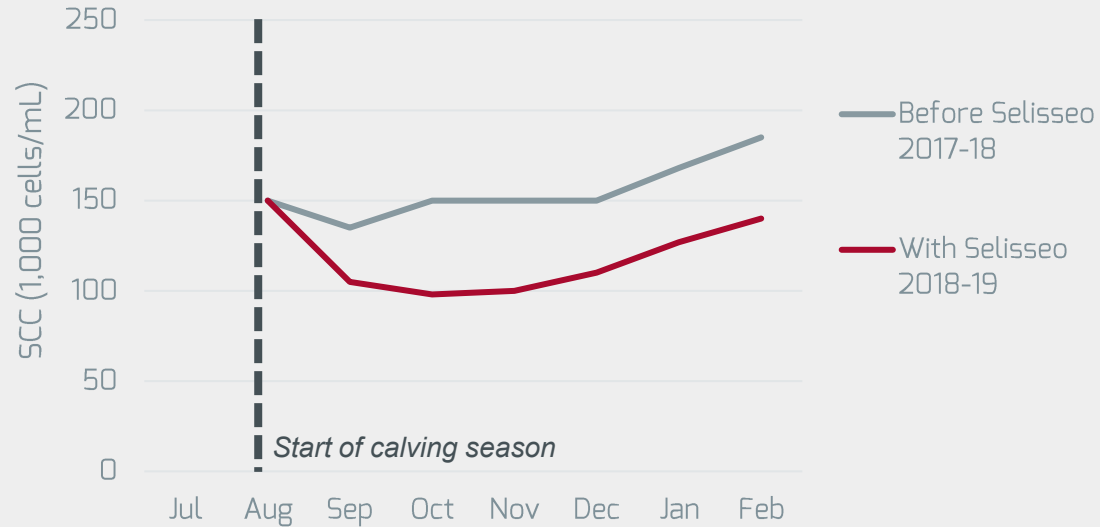
Commercial dairy in France. 45 Limousine cows supplemented ~42 days prepartum.
Trt: basal diet +7 mg Se from Sodium Selenite or +3.64 mg Se from SeYeast or +3.64 mg Se from OH-SeMet

Juniper et al., 2019. JDS. 42 pregnant heifers
BW: 1,250 ± 10 lb; ~170 d of gestation; 7 wk washout, 8 wk prepartum supp.

OH-SeMet Decreases SCC in Field Demos

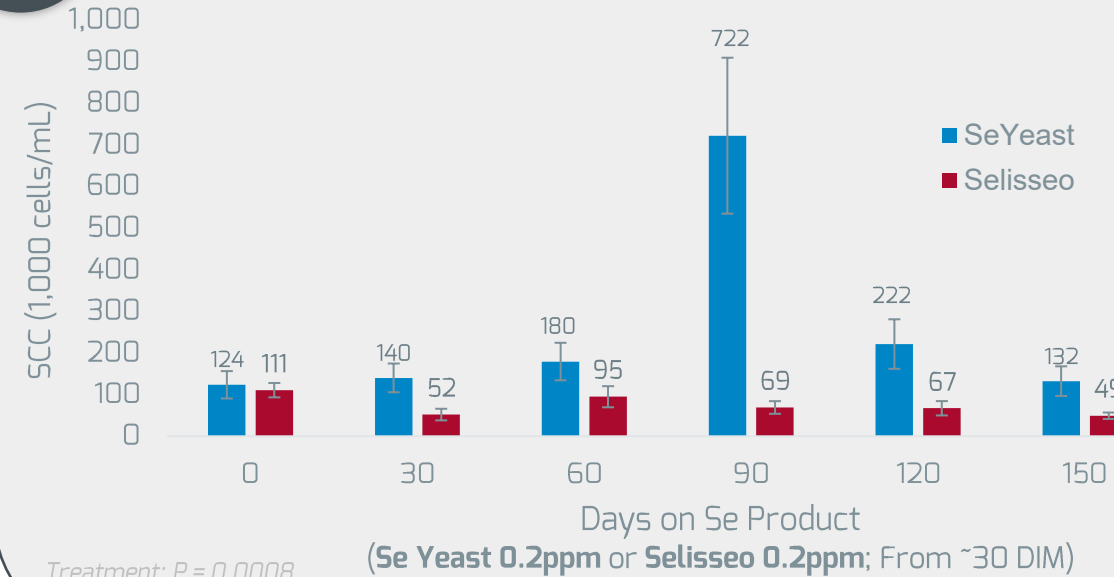
1

Demo Dairy (New Zealand) Avg. Somatic Cell Count



2

Demo Dairy (Turkey) Avg. Somatic Cell Count



3

Demo Dairy (Upper Midwest US)

- 50/50 Se Yeast/Selenite switched to 100% Selisseo
- Bulk tank SCC was **~60,000 cells/mL lower with Selisseo**

Se Yeasts Are Variable

Production can be Impacted by:

Base medium

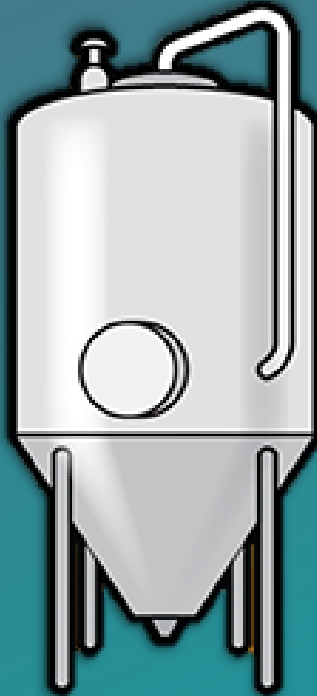
Energy source

pH

Temp

Shaking speed

Inorganic Se
concentration



Fermentation
conditions

Yeast strain

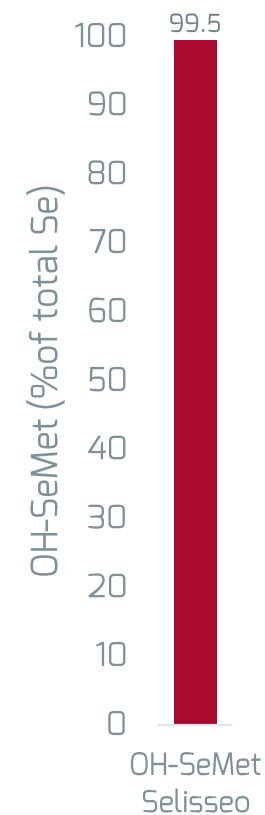
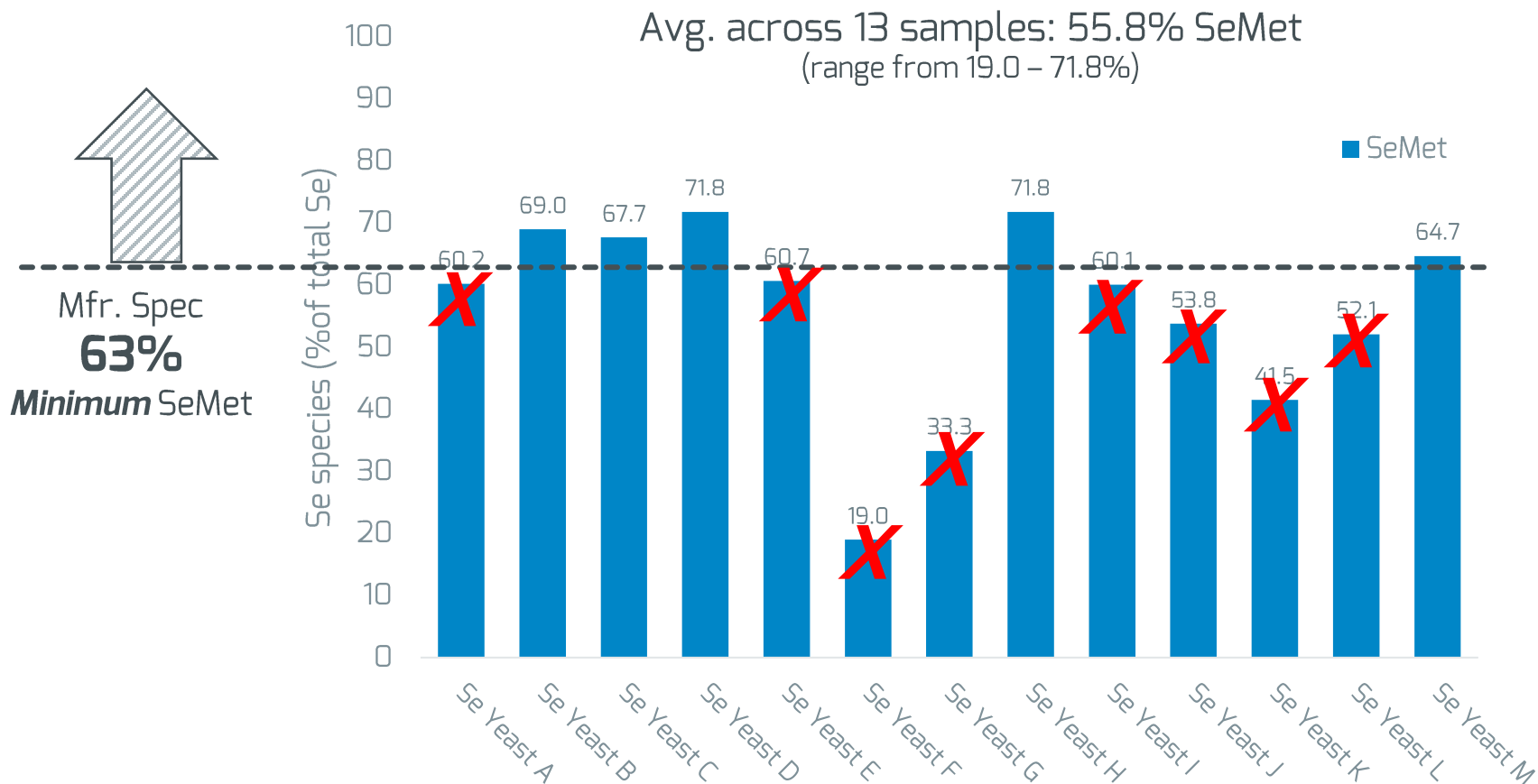
Aeration

Se addition
protocol

Incubation time

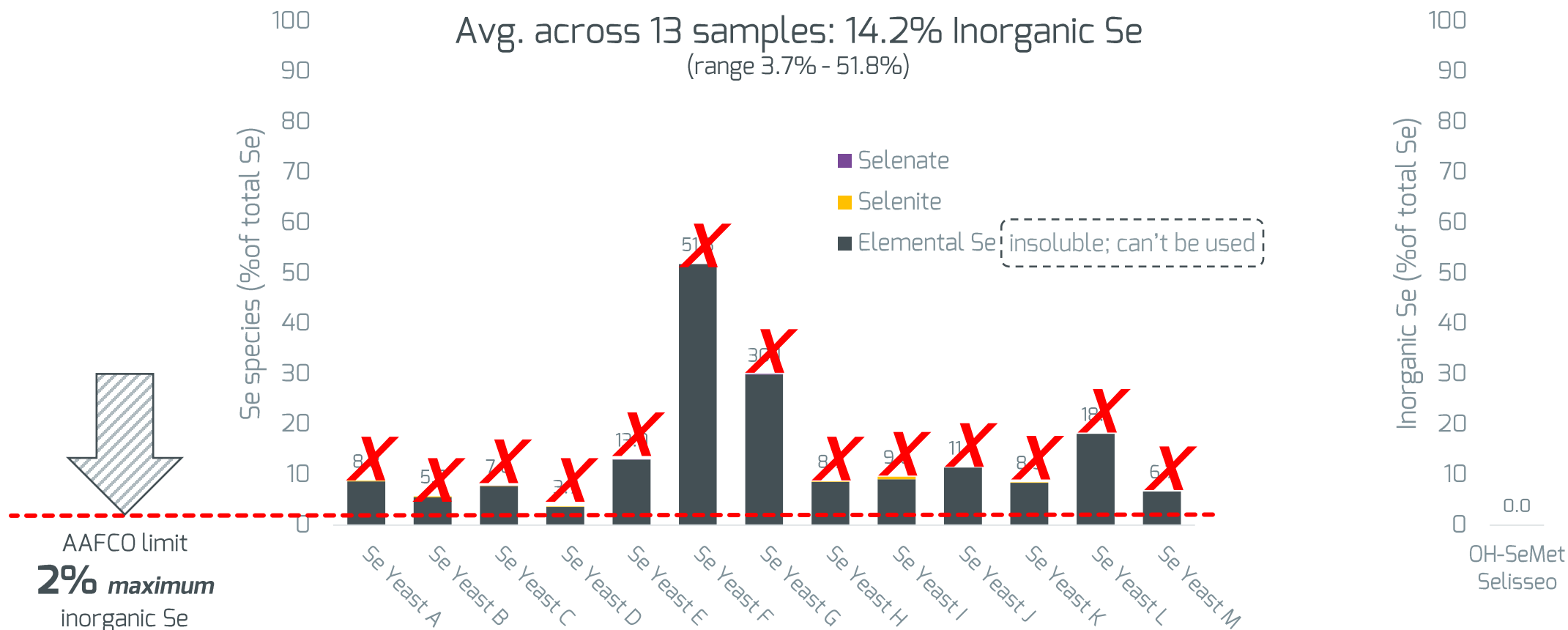
Inoculum size

Se Yeasts Provide Low, Variable SeMet



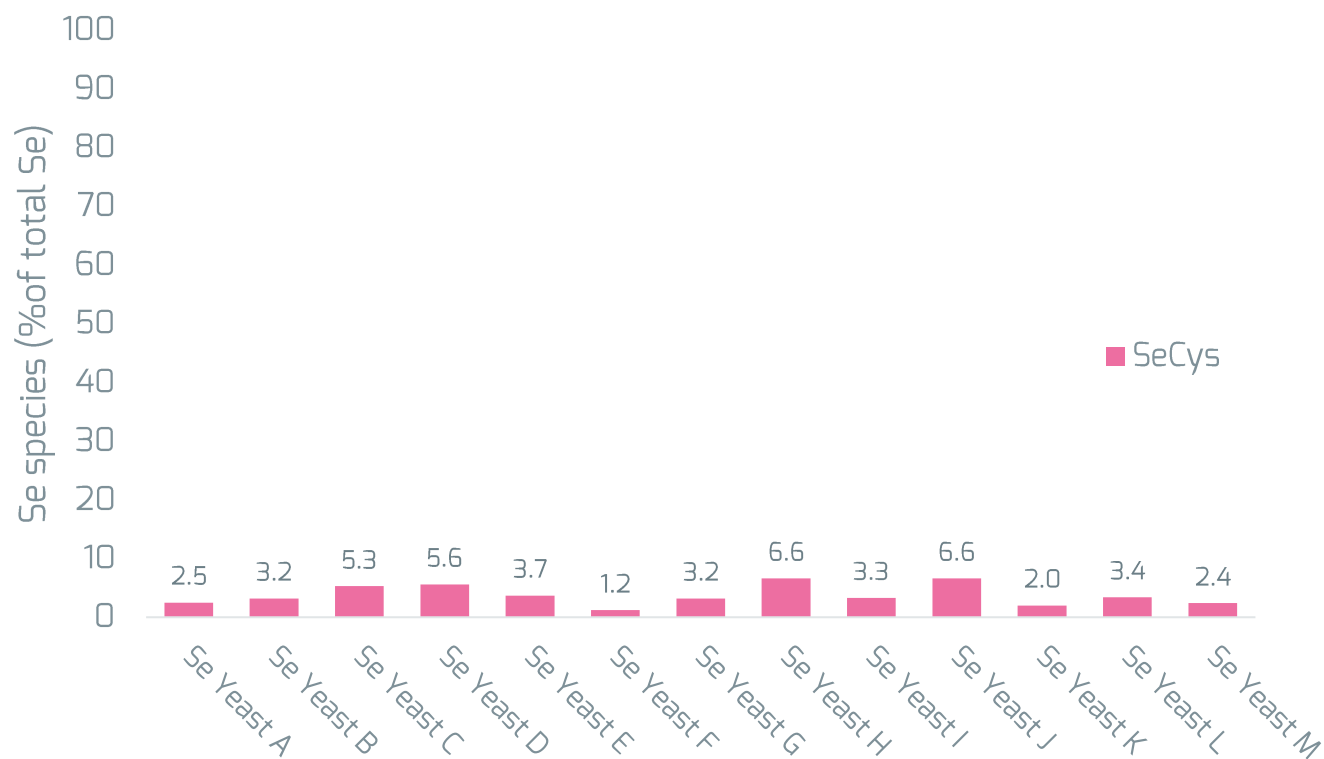
13 Se Yeast samples, within expiration date, from different commercial products and batches. From strains: CNCM I-3060, CNCM I-3399, NCYC R397, NCYC R645 and NCYC R646. Labeled total Se content: 1,000 – 3,000 mg/kg. Total Se: ICP-AES. SeMet, Selenite, Selenate, SeO: HPLC-ICP-MS. SeCys: proteolysis/CAM-SeCys. Hachemi et al., 2023. BTER. <https://doi.org/10.1007/s12011-023-03633-z>

Se Yeasts Provide Low, Variable SeMet, and HIGH Inorganic Se!



13 Se Yeast samples, within expiration date, from different commercial products and batches. From strains: CNCM I-3060, CNCM I-3399, NCYC R397, NCYC R645 and NCYC R646. Labeled total Se content: 1,000 – 3,000 mg/kg. Total Se: ICP-AES. SeMet, Selenite, Selenate, SeO: HPLC-ICP-MS. SeCys: proteolysis/CAM-SeCys. Hachemi et al., 2023. BTER. <https://doi.org/10.1007/s12011-023-03633-z>

Se Yeasts Provide SelenoCysteine: Does that Matter? Not Really.



- SeCys = active form inserted into selenoproteins
- BUT, ALL SeCys synthesis is *de novo*
 - ALL diet Se must be metabolized to selenide, then selenophosphate, then SeCys
 - Any SeCys from the diet is broken down and rebuilt from scratch
- A better focus = SeMet
 - Use today or stored for future stress

Se Yeasts



Mail letters over the phone!

The amazing Xerox Magnafax Telecopier can send an exact copy anywhere in the country. Over ordinary telephone equipment.



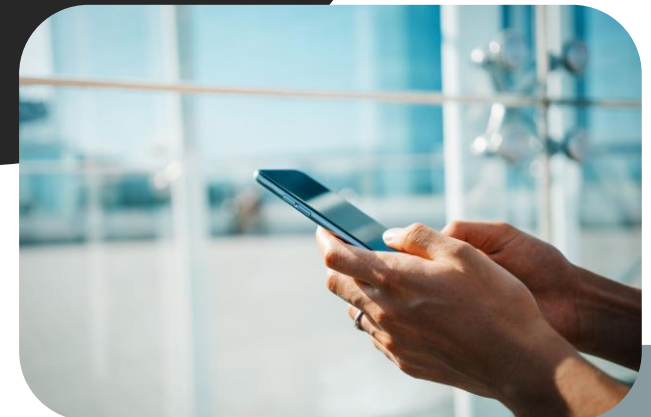
1. Insert your letter in the Telecopier.
2. Pick up your telephone and dial a number. Any number anywhere in the country.
3. Lay the receiver on the coupler.
4. Minutes later an exact copy of your letter comes out of the Telecopier at the other end of the line. The amazing Telecopier sends and receives exact copies of anything written, printed, drawn, typed or photographed. Any distance. Over ordinary telephone equipment.

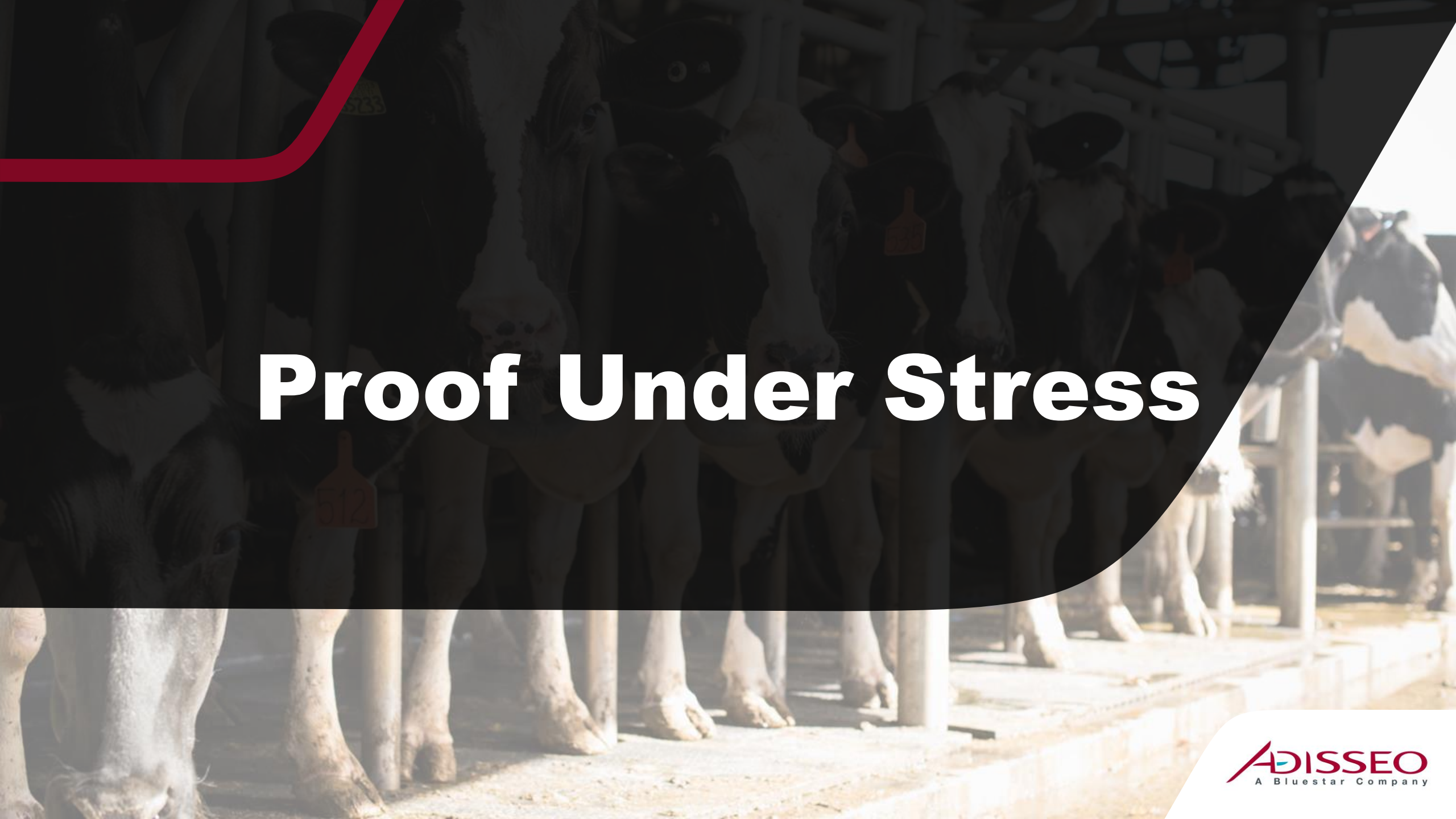
Think how many ways you could use a Telecopier. When you get to a million, call your Xerox Copy Consultant.

The Xerox Magnafax Telecopier

XEROX

Pure OH-SeMet

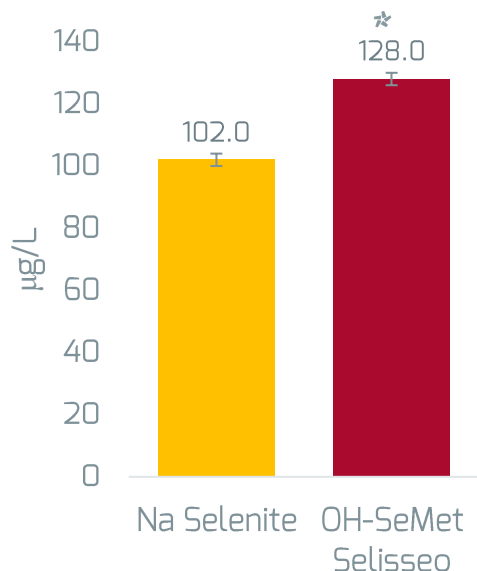




Proof Under Stress

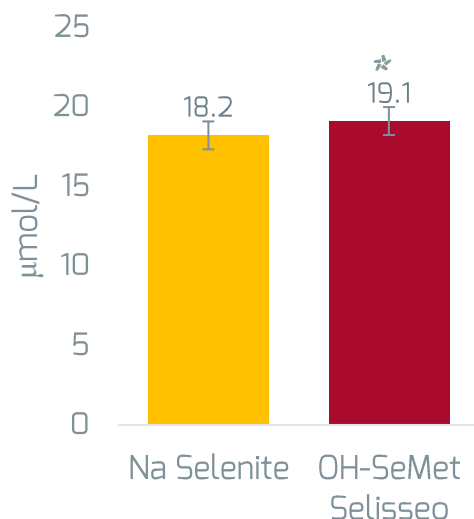
Heat Stress | OH-SeMet Improves Se Status, Milk Yield

Serum Selenium



*P < 0.05
Sun et al., 2019

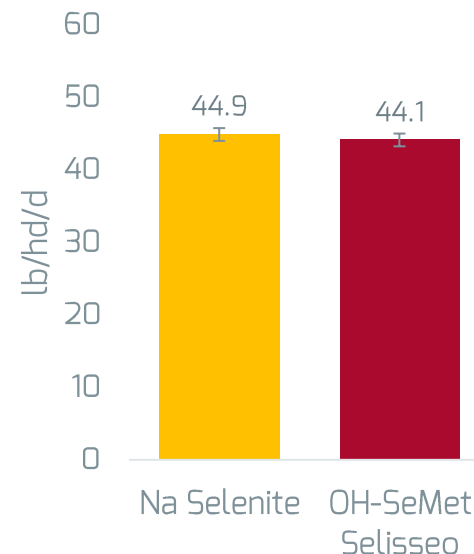
Serum GPx (Glutathione Peroxidase)



*P < 0.05
Yang et al., 2025

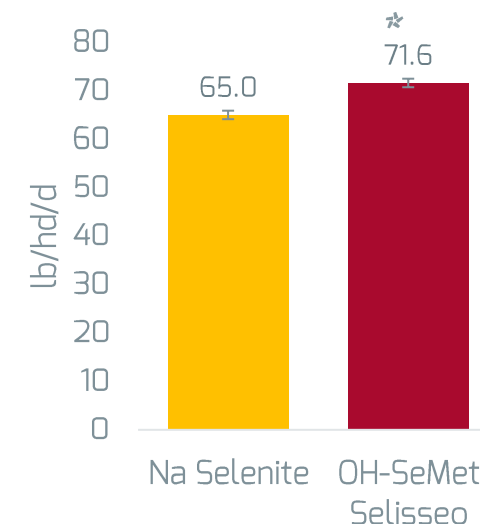
GPx = enzyme that protects from oxidative stress

DMI During Heat Stress



P = NS
Yang et al., 2025

Milk Yield During Heat Stress



*P < 0.05
Yang et al., 2025

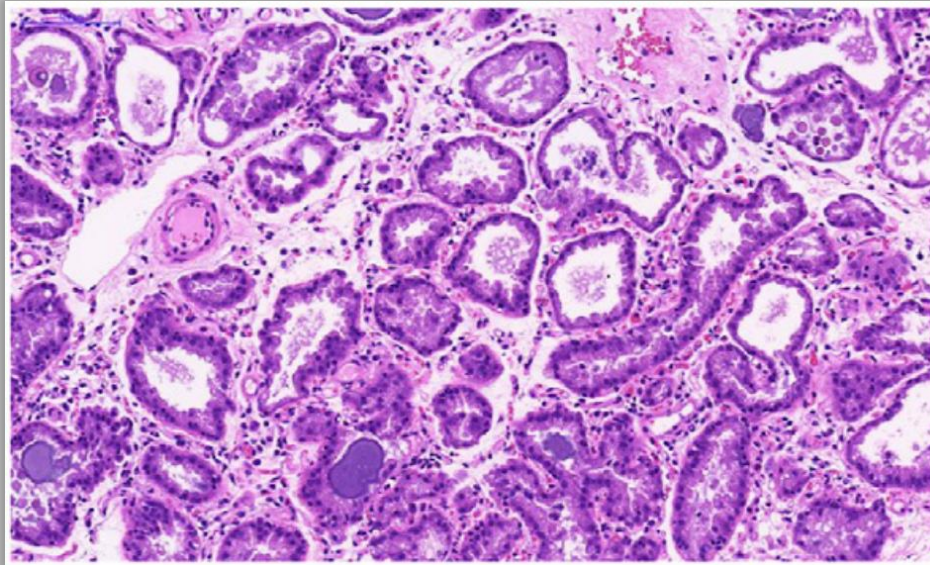
+6.6 lb milk yield
with Selisseo

	Added Se, mg/kg DM		Avg. THI / d
	Na Selenite	OH-SeMet/Selisseo	
Sun et al., 2019	0.3	0.3	82.6 – 84.3
Yang et al., 2025	0.74	0.75	>80



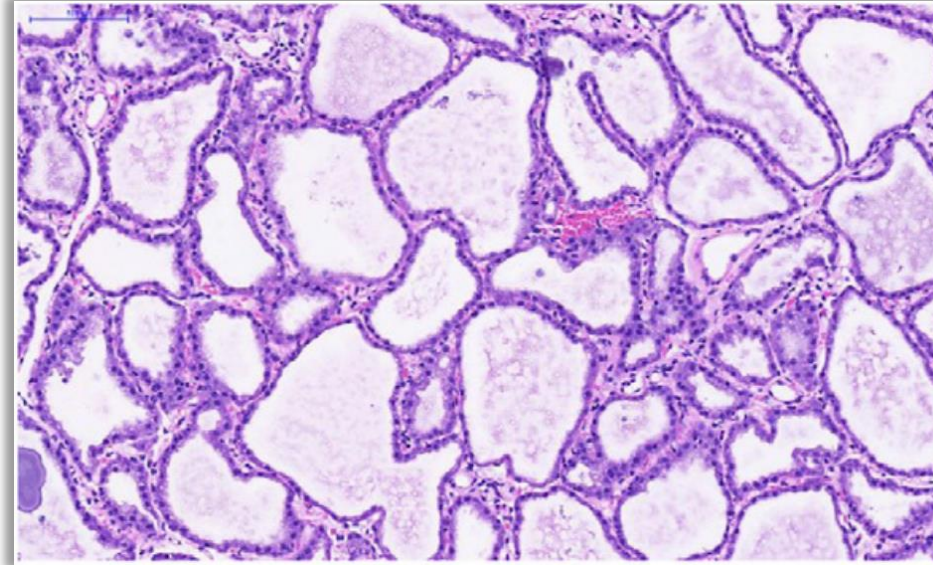
Heat Stress | OH-SeMet Maintains Mammary Gland Structure

Na Selenite



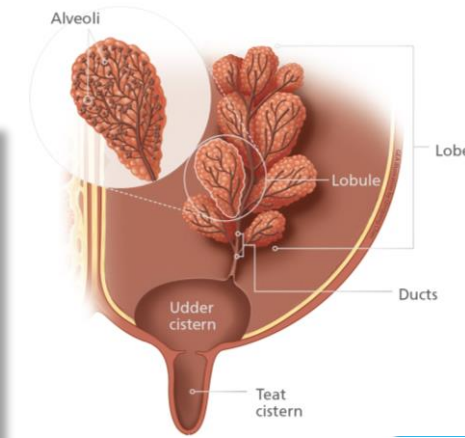
- Damaged structure, thickened walls

OH-SeMet (Selisseo)



- 2.5x greater alveolar area
- Decreased proinflammatory cytokines

= experienced less severe heat stress



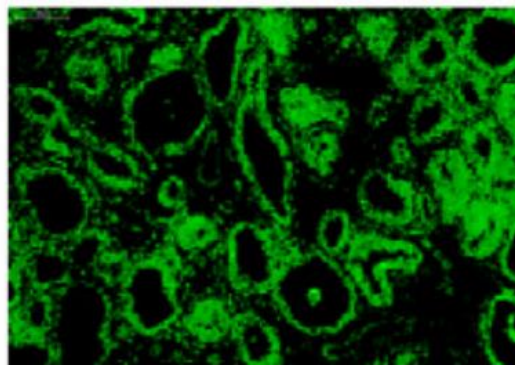
	Added Se, mg/kg DM		Avg. THI / d
	Na Selenite	OH-SeMet/Selisseo	
Yang et al., 2025	0.74	0.75	>80

Heat Stress | OH-SeMet Maintains Tight Junction Integrity

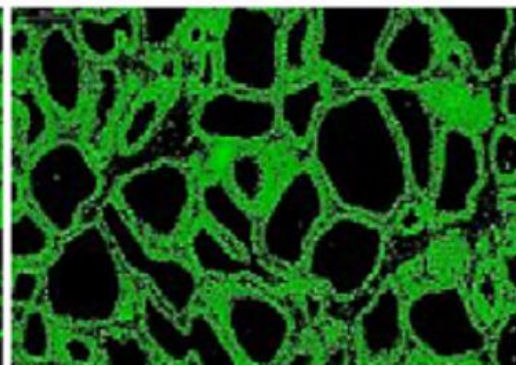
Tight Junction Proteins

ZO-1

Na Selenite



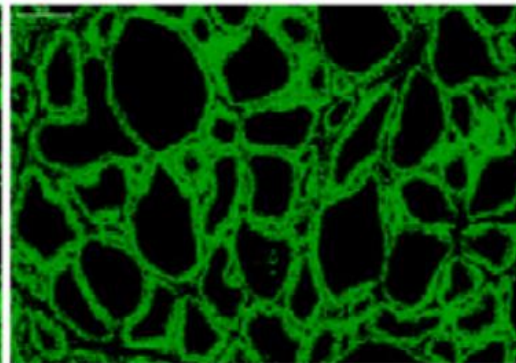
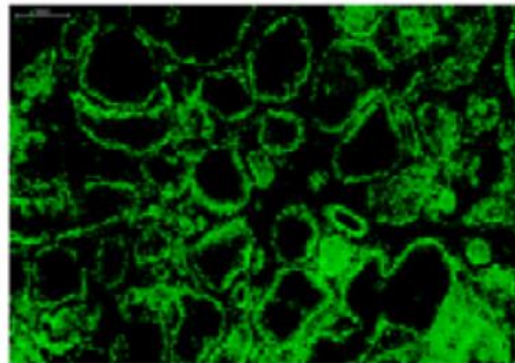
OH-SeMet (Selisseo)



+30%

expression with OH-SeMet

Occludin

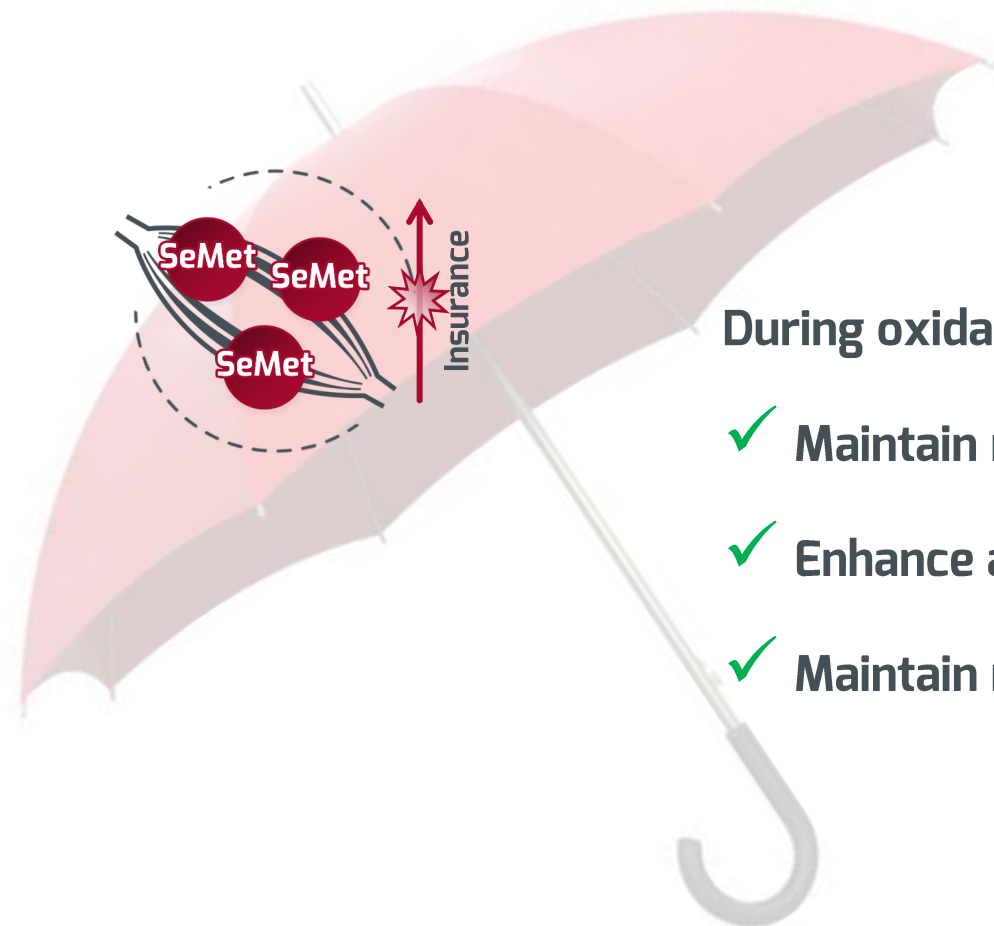


+20%

expression with OH-SeMet

	Added Se, mg/kg DM		Avg. THI / d
	Na Selenite	OH-SeMet/Selisseo	
Yang et al., 2025	0.74	0.75	>80

OH-SeMet Helps Cows Overcome Oxidative Stress



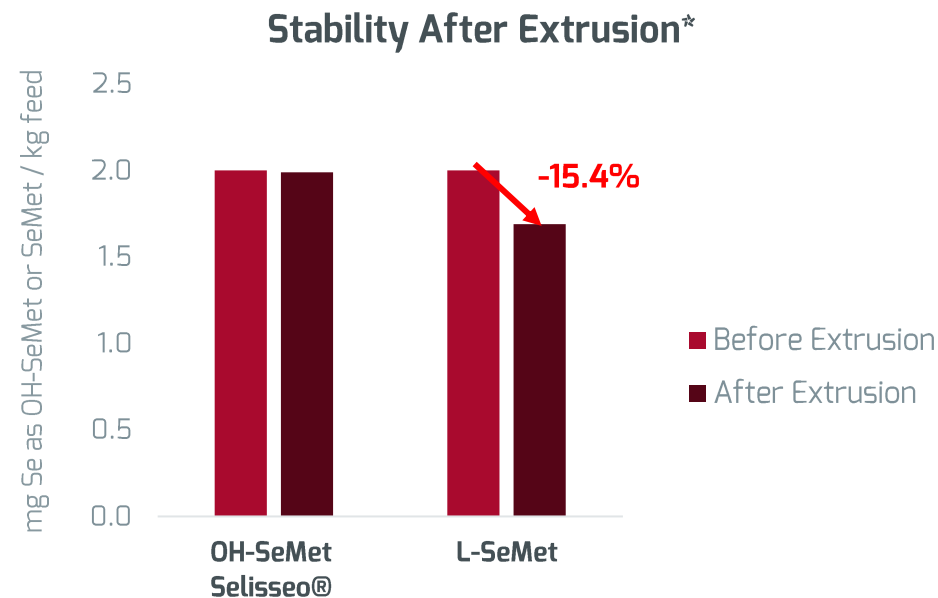
During oxidative stress, OH-SeMet helps cows:

- ✓ Maintain mammary gland tight junctions
- ✓ Enhance antioxidant capacity, immune function
- ✓ Maintain milk yield

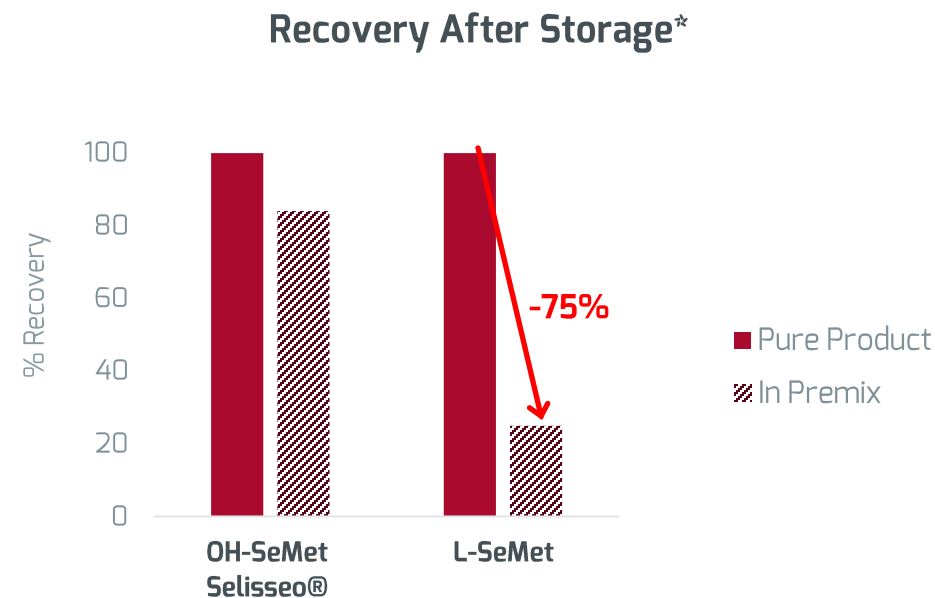
A group of white sheep is shown in a field, partially obscured by a large, dark, semi-transparent overlay that covers the upper and middle portions of the image. A thin red line runs diagonally across the top left corner of the overlay. The text "What about other Pure Forms Like L-SeMet?" is centered in white, bold font within the dark area.

What about other Pure Forms Like L-SeMet?

OH-SeMet is Stable During Processing and in Storage



*Extrusion conditions: Temp = 130°C; Pressure = 130 bar; Water = 263 ml/min

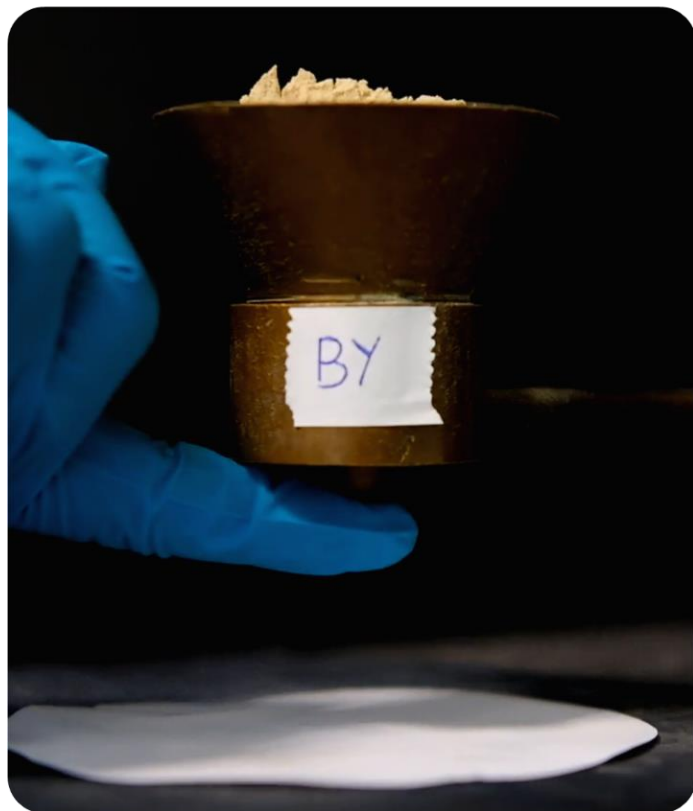


*Storage Conditions : 1 month, 40°C, 75% Relative Humidity, open bags

- ✓ Selisseo resists harsh feed processing, thermal treatments, and extrusion
 - ✓ Selisseo is more stable in storage and in premixes
- Even compared to other pure products like L-SeMet!**

OH-SeMet is Easy to Handle

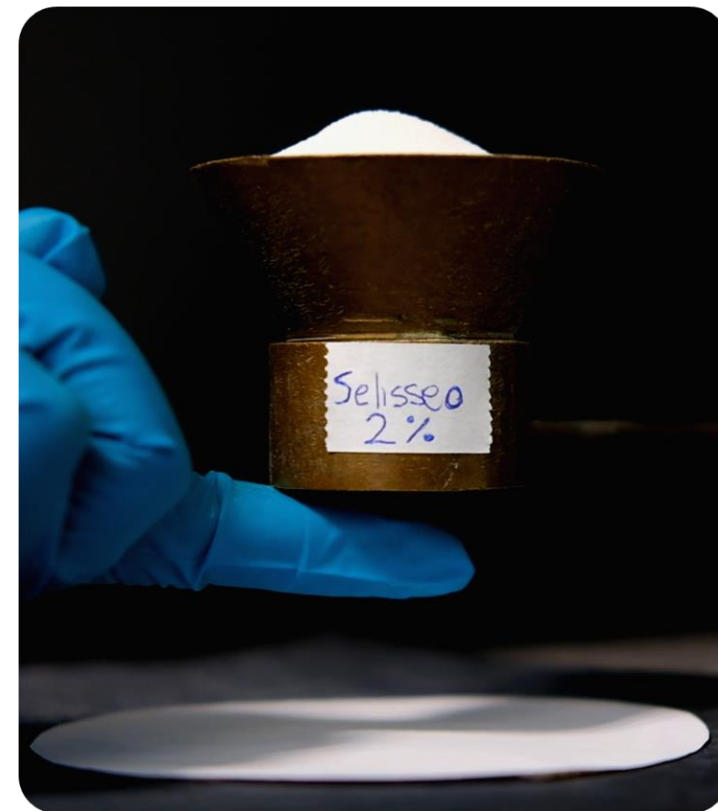
Selisseo® is a free-flowing powder with a uniform, dust-free consistency for effective mixing



SeYeast



L-SeMet



OH-SeMet
Selisseo®

Application and Economics

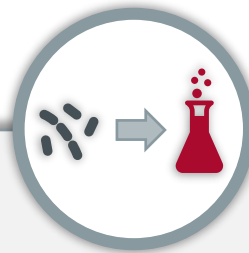
What's Your Se Insurance Policy?



Using Inorganic Se?

→ **Try organic**

- *Provide SeMet that can be stored*
- *Decrease toxicity risk*



Using Se Yeast?

→ **Try OH-SeMet**

- *Reliable*
- *Consistent*
- *Available*
- *Easy to handle*



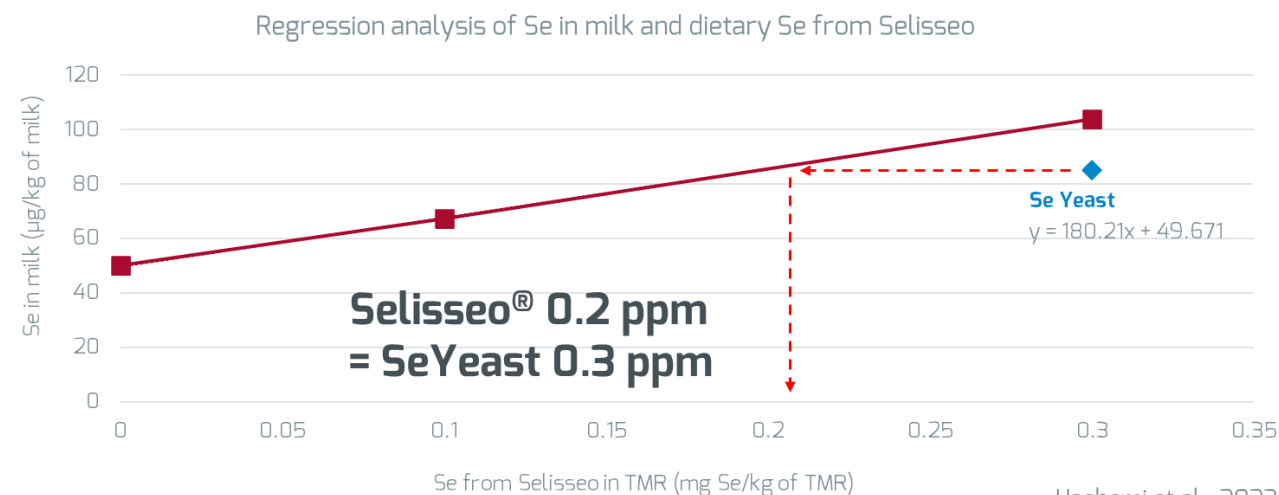
Prepare now for future stress!



What's Your Se Insurance Policy?

Selisseo® Reformulation Options:

1. Stick with 0.3 ppm Se from Selisseo; get more out of it
2. Selisseo 0.2 ppm = SeYeast 0.3 ppm
 - Tag will show 0.2 ppm Se!



! Watch out for organic Se nutrient in formulation softwares!

- Value missing or set to 98% organic Se for Se Yeasts (analysis shows avg. 55% SeMet)



Adisseo Selisseo Calculator

Assess Your Best Selenium Nutrition Strategy

Targets

DMI, lb/hd/d

Total Added Se, ppm

55

0.30

g/hd/d

VTM 1

SeYeast

100%

2.49

cents 1.63 /hd/d

cents 0.36 /mg SeMet

VTM 2

Selisseo

100%

0.33

cents 2.17 /hd/d

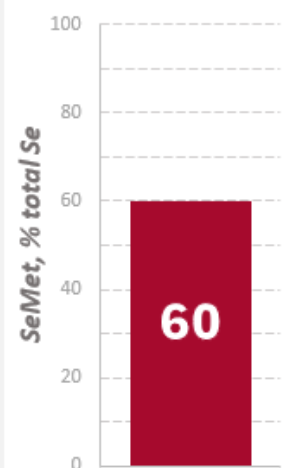
cents 0.29 /mg SeMet

+ half cent /hd/d

Cheaper per mg SeMet

Product Information

	Se, ppm	SeMet, % Se	Price, \$/lb
Selenite	9,900	0	0.57
SeYeast	3,000	60	2.96
Selisseo	22,400	99.6	29.48



min 46

max 74



min 99

max 100

Notes:

- ✓ All editable cells are red
- ✓ Some red cells contain a drop-down list
- ✓ hd = head

Selisseo®

OH-SeMet | The Future of Selenium Nutrition

Selenium Insurance

Antioxidant support
during stress

SeMet Reserves

SeMet Source Matters

OH-SeMet is pure,
stable, reliable

Proof Under Stress

Lower oxidative stress,
lower SCC

Maintain milk yield

\$

Cheaper
per mg SeMet
than Se Yeasts