Selisseo®

SMARTMAIL™ by ADISSEO A Bluestar Company

SELISSEO® & HEAT STRESS

Is Your Selenium Insurance Policy in Place?

In the seasonal battle against heat stress, one critical but often overlooked ally is selenium – particularly in its most effective form: hydroxy-selenomethionine (OH-SeMet).

Figure 1. Hydroxy-selenomethionine helps cows overcome heat stress

During heat stress, OH-SeMet helps cows:

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

SELENIUM INSURANCE

Selenium is critical for antioxidant defenses, especially during bouts of oxidative stress, including heat stress. Selenium supports immune cell function, cellular integrity, milk production, and reproduction by preventing and neutralizing oxidative molecules like ROS (reactive oxygen species). These supportive roles are summarized in *Figure 1*.

Dairy nutritionists implement organic selenium sources because they contain selenomethionine (SeMet), the only form of selenium that meets immediate antioxidant requirements and can be stored in tissue reserves for future use under stress. This is in contrast to inorganic selenium sources, which are either used or excreted in urine; they can't be stored.

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WHAT ABOUT SELENIUM YEASTS?

To provide organic selenium (as SeMet), many nutritionists supplement selenium yeasts. However, selenium yeasts supply only ~60% of their selenium as SeMet. Production of selenium yeasts is an inherently variable biological process, resulting in fluctuating SeMet levels (ranging from 19.0% – 71.8% SeMet; Hachemi et al., 2023a). Recent research also shows that selenium yeasts actually contain high amounts, from 3.8 – 51.8%, of selenium as elemental selenium (Hachemi et al., 2023a). Elemental selenium is insoluble, is not bioavailable to the animal, and is completely excreted in feces.

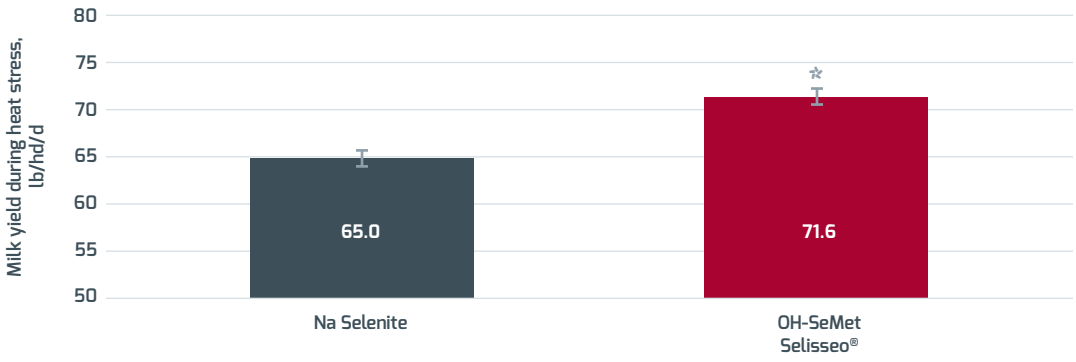
THE MOST RELIABLE ORGANIC SELENIUM

OH-SeMet is a precursor to SeMet and is immediately converted in the body to SeMet. Selisseo, from Adisseo, is the only OH-SeMet source on the market and supplies 100% of selenium as OH-SeMet in a stable, patented form. This ensures minimal risk in formulation and performance; crucial when managing heat stress risk.

Peer-reviewed studies and field demonstrations confirm that compared to sodium selenite or selenium yeast, OH-SeMet improves selenium status (measured as selenium levels in plasma, milk, muscle, and colostrum), increases serum glutathione peroxidase levels and serum total antioxidant capacity, and decreases somatic cell score (Hachemi et al., 2023b, Sun et al., 2017).

During heat stress, OH-SeMet increases serum and milk selenium levels, maintains lower respiration rate, as well as maintains significantly higher milk yield: +6.6 lb (3.0 kg)/cow/day compared to sodium selenite supplementation (Figure 2; Yang et al., 2025, Sun et al., 2019). This difference in milk production was not driven by differences in intake, but rather histological analysis revealed OH-SeMet supported the preservation of mammary gland structure and tight junction integrity, key for sustaining higher milk yield under heat stress (Yang et al., 2025). The same study showed that blood inflammatory markers are lower with OH-SeMet, while antioxidant enzymes like glutathione peroxidase and superoxide dismutase are higher with OH-SeMet compared to sodium selenite supplementation during heat stress (Yang et al., 2025).

Figure 2. Hydroxy-selenomethionine maintains milk yield during heat stress



* $P < 0.05$
Yang et al., 2025

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A SMALL PRICE FOR BIG PROTECTION

Organic selenium represents a minimal investment to ensure cows are equipped to withstand the oxidative burden of summer heat stress. When supplying organic selenium, Selisseo® is cheaper per unit SeMet than selenium yeasts.

COMPLEMENTARY ROLE WITH METHIONINE

Selenium and methionine work synergistically to support antioxidant defense and immune function in lactating dairy cows, especially during periods of stress. Specifically, selenium supports antioxidant enzymes like glutathione peroxidase, while methionine is a key methyl donor supplying glutathione precursors. Methionine's support of health and performance during transition period heat stress was covered in a recent SmartMail. The synergistic combination of selenium and methionine is a valuable tool for nutritionists to use to support high-producing dairy cows experiencing heat stress.

Consider OH-SeMet (Selisseo) as an insurance policy – one that builds antioxidant reserves in advance and protects against the inevitable stressors of high-temperature months. OH-SeMet provides consistent, reliable performance, especially as an insurance policy against summer heat stress.

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