Biomin® TorSel™

The Pathfinder

Naturally ahead

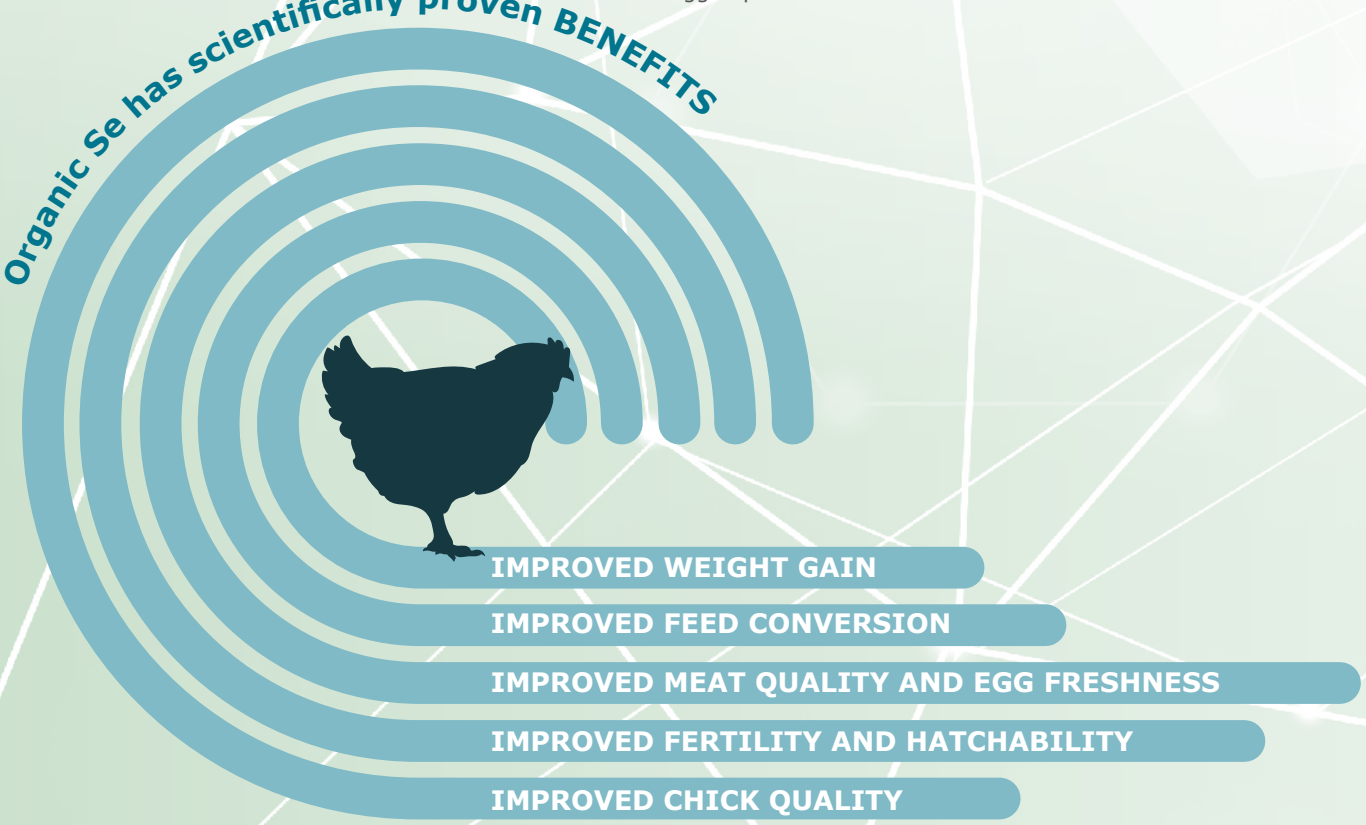
Biomin®

Organic selenium and its benefits

Selenium (Se) is a trace mineral required at small inclusion levels but essential for cell function. Se plays a major role in immunity, cell and DNA protection, and fertility. Most importantly, Se is a key component of seleno-proteins and antioxidant enzymes needed for animal health, reproduction and performance. Protein or carbohydrate-bound (organic) minerals have enhanced absorption and bioavailability compared to inorganic bound minerals, allowing lower inclusion rates and lower excretion, mitigating the environmental impacts of Se additives.

STRESS CHALLENGES IN POULTRY FARMS

Whether growing poultry for meat, managing laying hens for egg production or raising high genetic potential breeders, modern farming practices, including lower reliance on antibiotics, place metabolic stress on the livestock due to high production pressure: heat stress, diet changes, high flock density, and the demand for fast weight gain and high egg deposition.



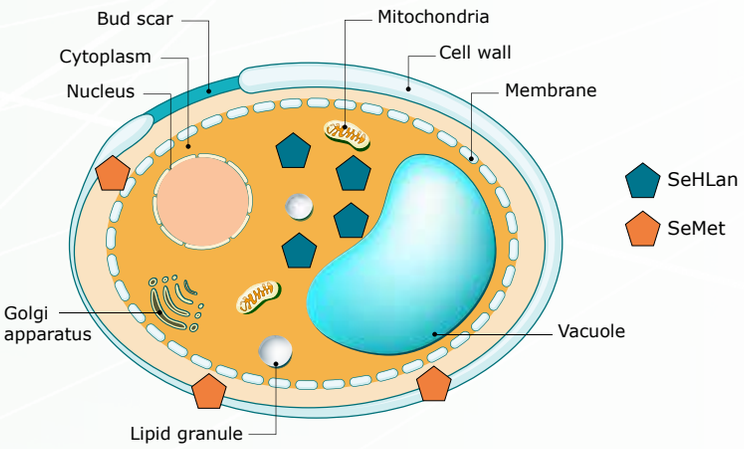
The novel & unique source of organic selenium

Biomin® TorSel™ is a 99% organic selenium enriched yeast derived from the species *Candida utilis* commonly known as Torula yeast. This yeast is fermented with an exclusive technology and produces Seleno-homolanthionine (SeHLan) – an unique form of organic selenium with a differentiated metabolic pathway and high bioavailability. SeHLan is the major component of Biomin® TorSel™.

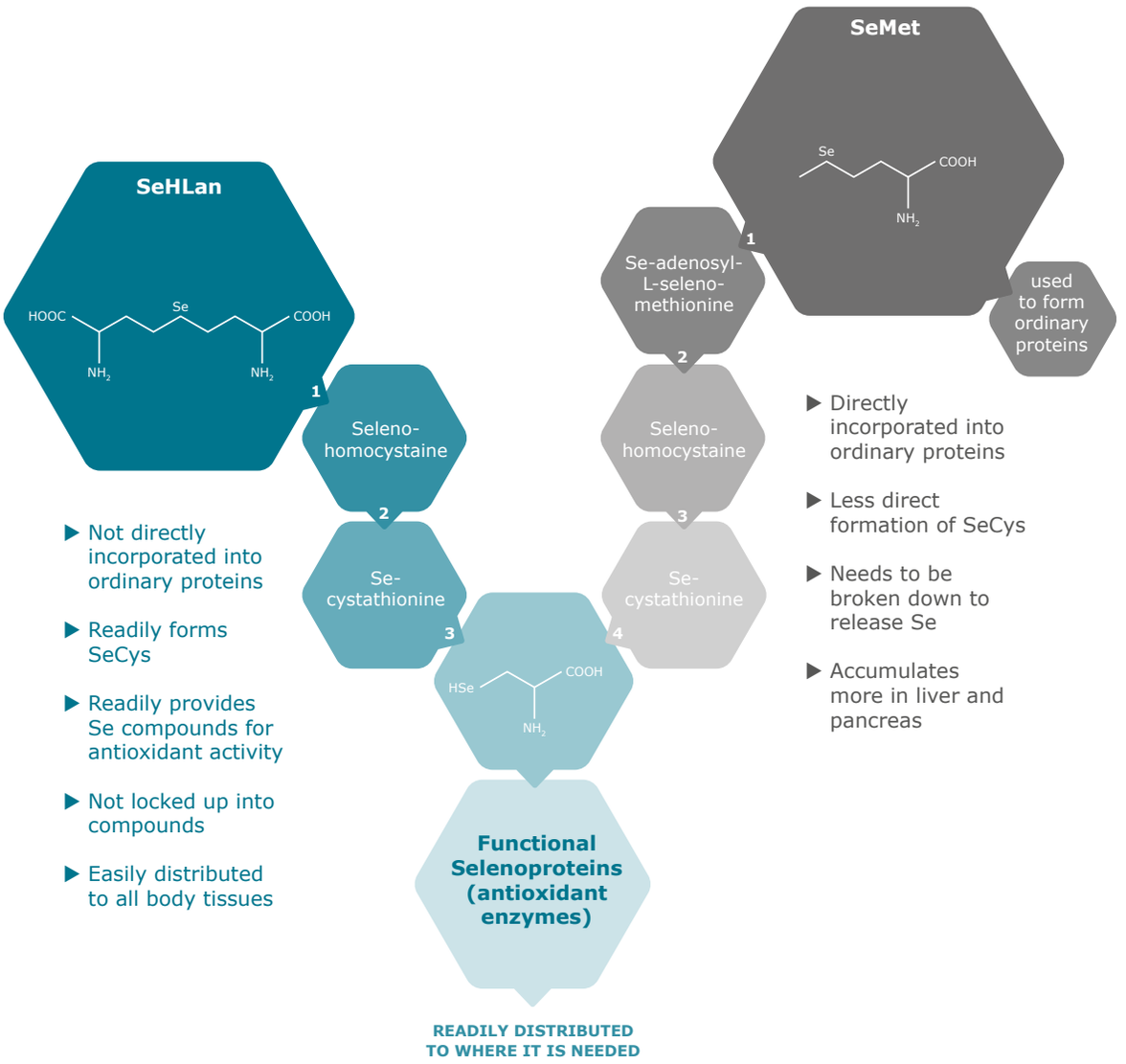
SeHLan takes a shorter and simplified pathway (functional selenoproteins), leading to a more efficient utilization and less redirection to ordinary protein synthesis compared to seleno-methionine (SeMet).

This efficient pathway guarantees an enhanced distribution in tissues such as muscle, while accumulating less in the pancreas and liver than SeMet. This provides the animal superior antioxidant activity, supporting immune function, reproduction and performance.

Yeast cell showing reservoir of Se sources



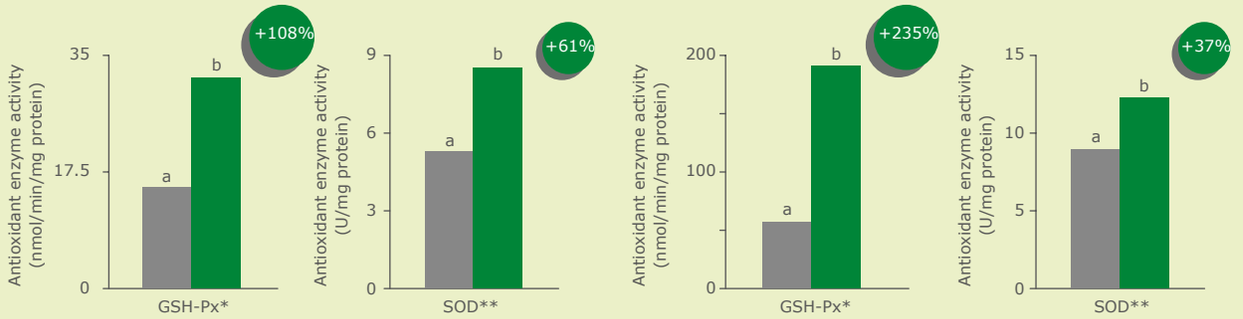
The most efficient path to provide antioxidant protection



ANTIOXIDANT ENZYME ACTIVITY

Biomin® TorSel™ increases antioxidant enzyme activity, such as glutathione peroxidase (GSH-Px) and superoxide dismutase (SOD), enhancing the protection of breast muscle and other tissues from oxidative stress.

Biomin® TorSel™ increases antioxidative enzyme activity in plasma, to prevent oxidative stress and damage to animal cells, tissue and organs.



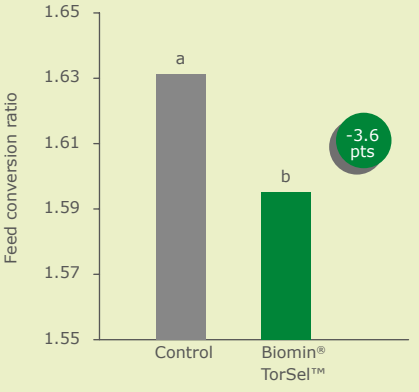
■ Control ■ Biomin® TorSel™ *Glutathione peroxidase | **Superoxide dismutase | Different letters above the bars indicate significant differences *Celi, 2013, University of Sydney*

Scientifically proven results

Performance

FEED CONVERSION RATIO

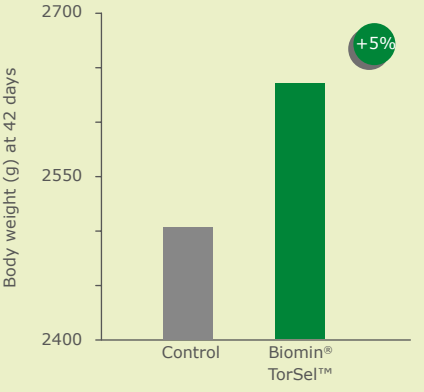
Biomin® TorSel™ improved FCR by approximately 3 – 4 points leading to feed cost savings for broiler producers.



Selle, 2013, University of Sydney
Different letters above the bars indicate significant differences

WEIGHT GAIN

Biomin® TorSel™ provides weight gain benefits for added profitability.

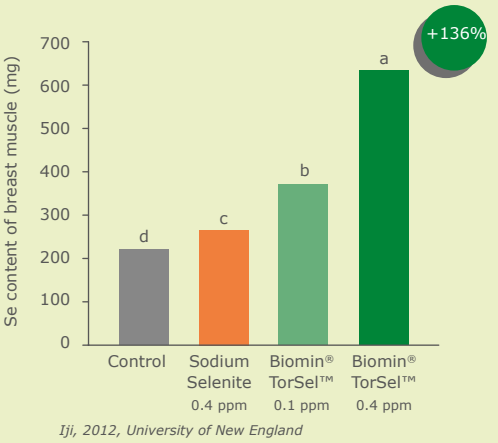


Selle, 2013, University of Sydney

Meat & Egg Quality

BREAST MEAT

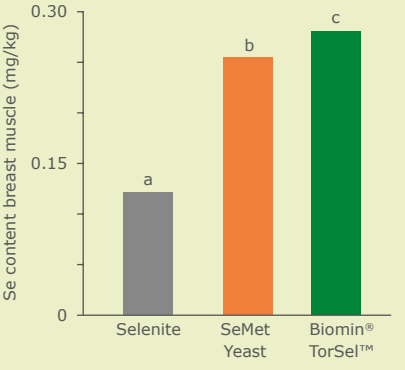
Biomin® TorSel™ significantly increased the Se content in broiler breast meat compared to sodium selenite, providing the needed support for optimal metabolic functions.



Iji, 2012, University of New England
Different letters above the bars indicate significant differences

BREAST MUSCLE

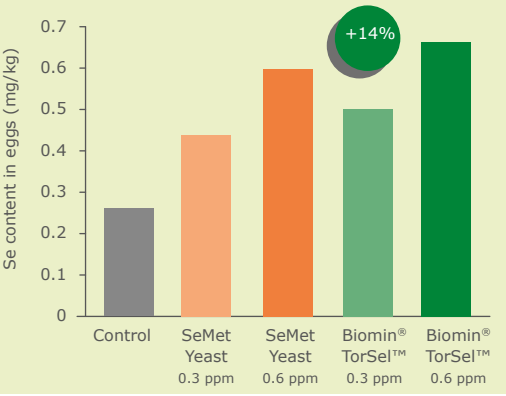
Biomin® TorSel™ outperformed sodium selenite (+130%) and a SeMet Yeast product (+10%), providing a more readily available Se for antioxidant and metabolic functions in Se reaching breast muscle tissue.

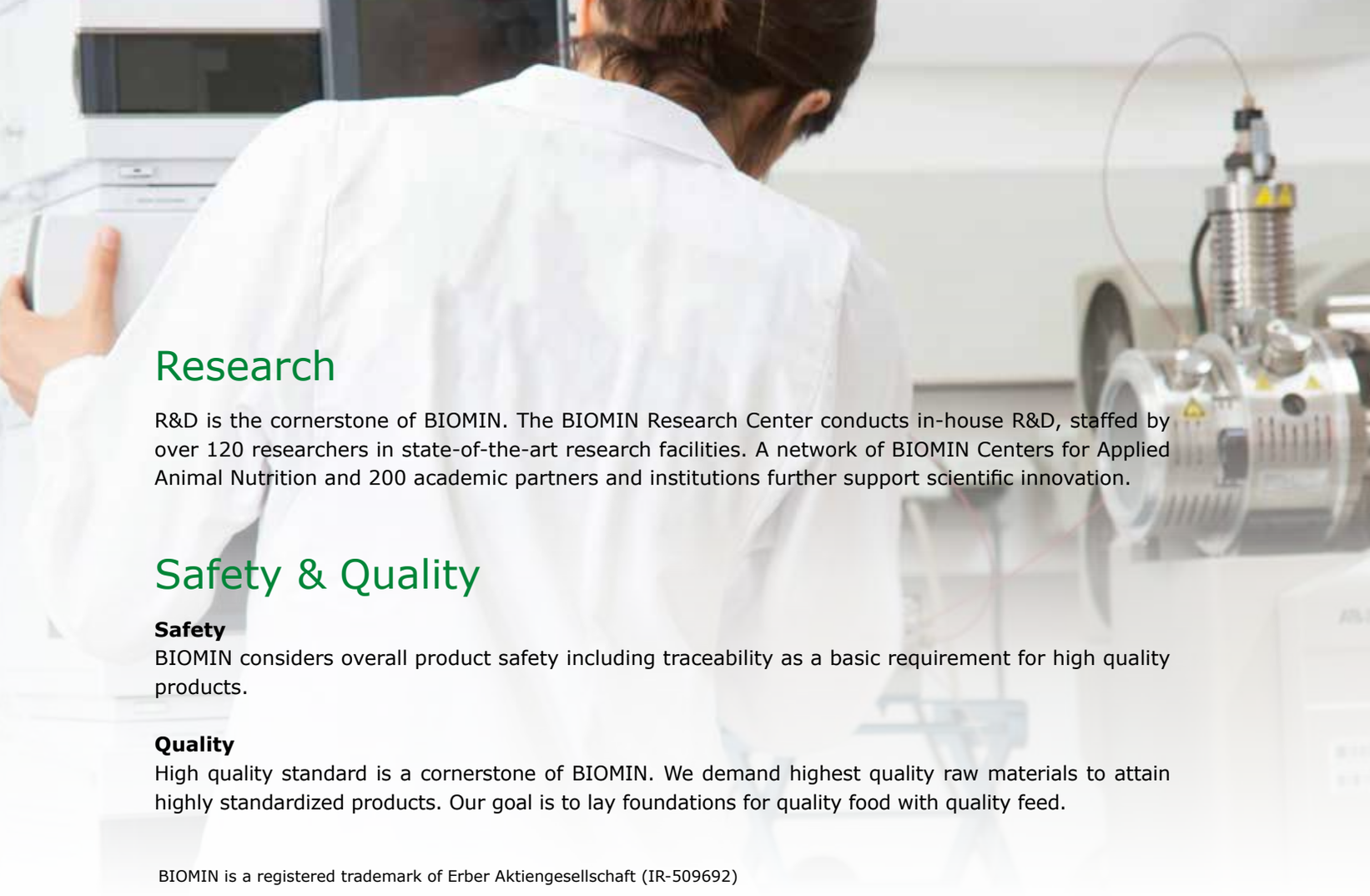


Selle, 2013, University of Sydney
Different letters above the bars indicate significant differences

EGGS

Biomin® TorSel™ offers a solution to enriching the selenium content of eggs, compared to a control and a SeMet-Yeast product, providing value to food retailers and consumers. Enhanced selenium in eggs has also been shown to have beneficial effects on chick quality and viability.





Research

R&D is the cornerstone of BIOMIN. The BIOMIN Research Center conducts in-house R&D, staffed by over 120 researchers in state-of-the-art research facilities. A network of BIOMIN Centers for Applied Animal Nutrition and 200 academic partners and institutions further support scientific innovation.

Safety & Quality

Safety
BIOMIN considers overall product safety including traceability as a basic requirement for high quality products.

Quality
High quality standard is a cornerstone of BIOMIN. We demand highest quality raw materials to attain highly standardized products. Our goal is to lay foundations for quality food with quality feed.

Sales & service **network:**

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BIOMIN has implemented the following standards:

HACCP APPROVED · ISO 9001 CERTIFIED · ISO 14040 Approved Life Cycle Assessment · ISO 14001 CERTIFIED · GMP+ Feed Safety Assurance · FAMI-QS

Distributor

BIOMIN is part of ERBER Group
... present in more than 130 countries worldwide!

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