

# Selenium Yeast

Organic selenium from biofermentation



Organic selenium with high bioavailability

Safe and environmental-friendly



**Yeast** For Animal Nutrition

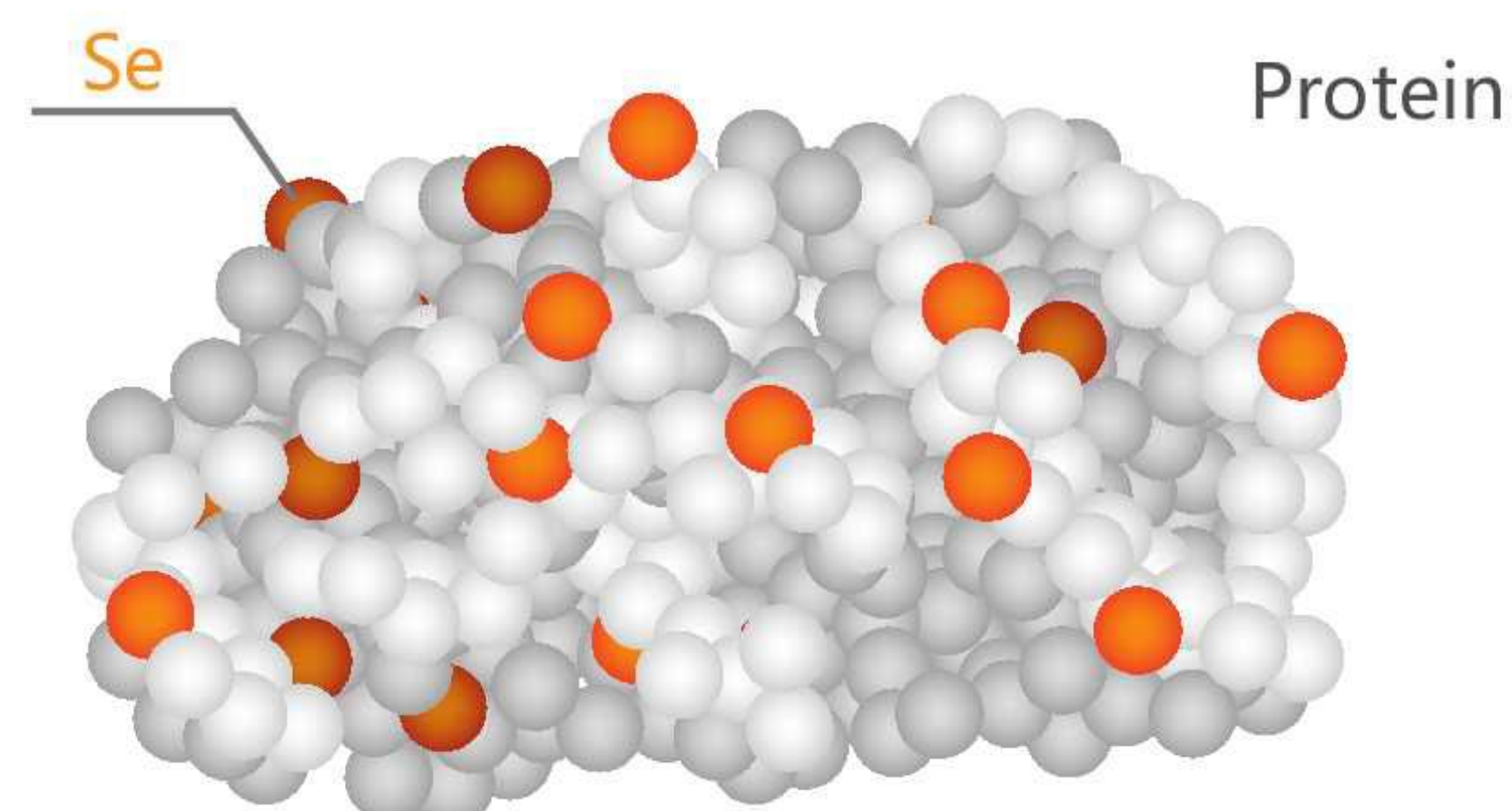


## Description

Fubon Selenium yeast, produced by submerged fermenting *Saccharomyces cerevisiae* in a selenium-rich media, is a recognized source of organic form selenium nutrient for animals.

## Efficacy

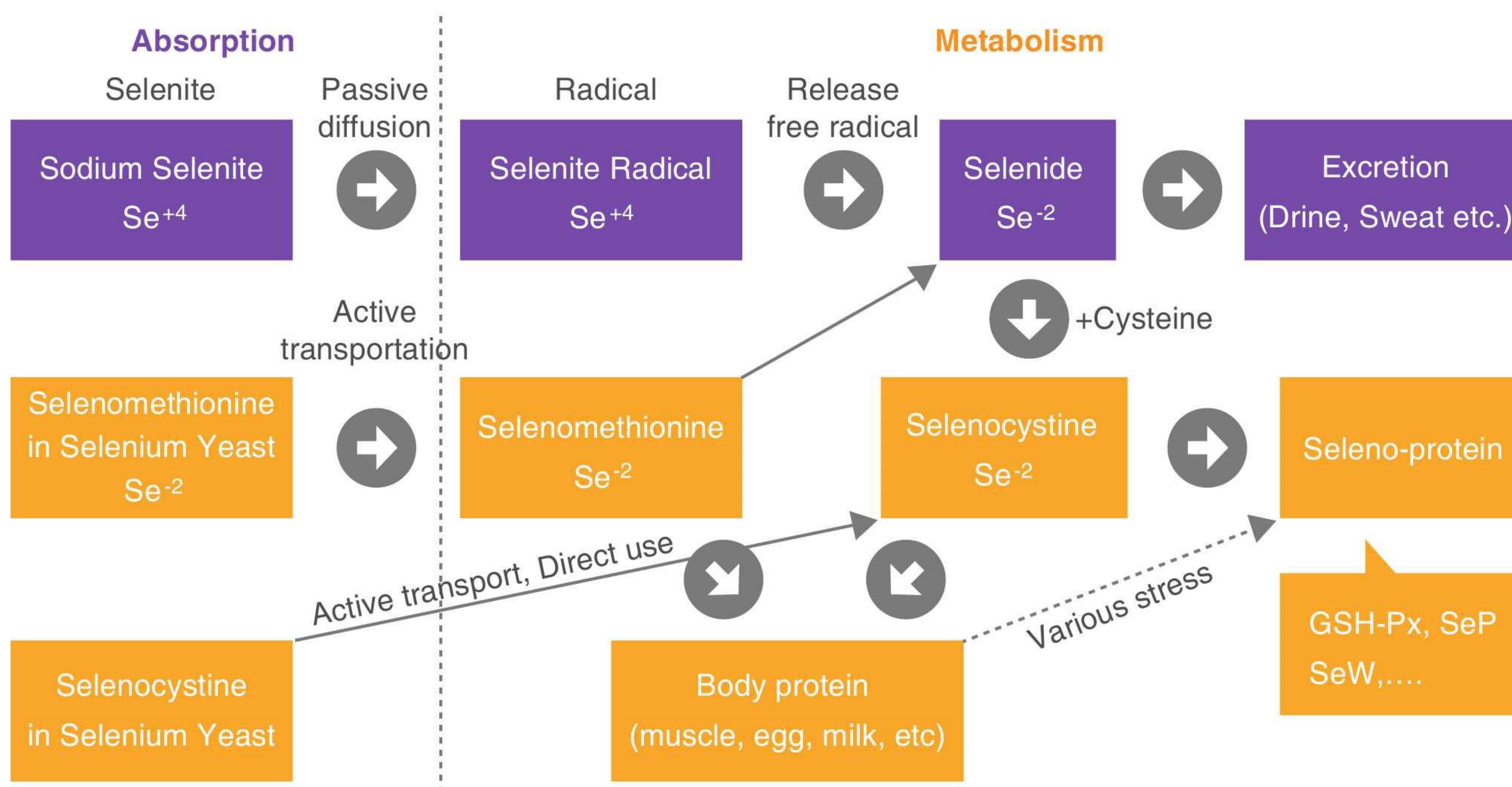
- Improve animal reproductive performance
- Relieve stress
- Reduce somatic cell counts in milk
- Improve carcass quality



## Mode of action

### Improve selenium deposition and availability

The selenomethionine in selenium enriched yeast is actively absorbed from the small intestine and travels in the blood by amino acid transport mechanisms. Mammals are not able to distinguish classic methionine form from selenomethionine, which is thus it can either be transported to the liver for incorporation into selenoproteins or directly to other tissues for incorporation into tissue protein. On the contrary, the sodium selenite is passively absorbed by the small gut, and before converting to selenoproteins, it has to release harmful radicals and convert into selenide. And this process is energy-wasting. Inorganic selenium surplus is excreted through the urine rather than stored in the tissues.



### Improve immunity, relieve stress

Selenium plays an important role in the effective operation of immune system. It can directly or indirectly improve the animal immune response. Selenium deficiency may affect the proliferation of T and B lymphocytes, and further reduce the production of immunoglobulins, such as IgM, IgG and IgA.



Improve anti-oxidant capacity and carcass quality

Selenium acts as a component of the main antioxidant cellular enzyme, glutathione peroxidase (GSH-Px), which destroys the peroxides and protects the cell content and sub-cellular membranes of oxidative damage. Organic selenium supplementation can significantly increase serum GSH-Px activity and total antioxidant capacity decrease the serum malondialdehyde (MDA) content. And effectively prevent myoglobin or oxygenation myoglobin into ferric oxide myoglobin, deepen muscle red degree and improve the color grading.

Guaranteed analysis

Total selenium content ≥ 2000mg/kg    Organic selenium > 98%

Application trials

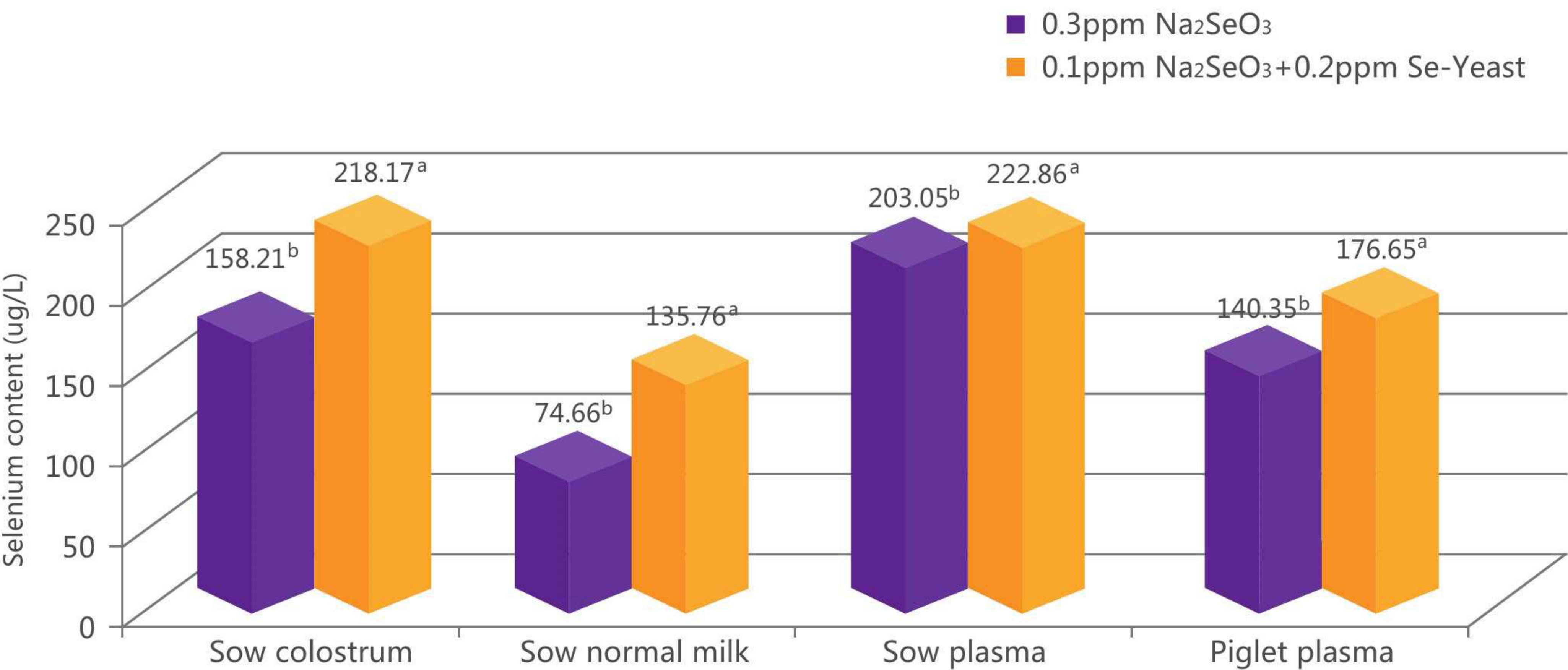
Fubon Selenium yeast can efficiently been absorbed and increase selenium deposition in body.

Table 1. Comparison of bioavailability of different type selenium resources. ( Mean±SEM, %)

	0.3ppm Na <sub>2</sub> SeO <sub>3</sub>	0.2ppm Na <sub>2</sub> SeO <sub>3</sub> + 0.1ppm Se-yeast	0.1ppm Na <sub>2</sub> SeO <sub>3</sub> + 0.2ppm Se-yeast	0.3ppm Se-yeast
Selenium bioavailability	26.1±2.7 <sup>A</sup>	36.9±1.5a <sup>B</sup>	42.9±1.4b <sup>B</sup>	53.0±1.2 <sup>C</sup>

Note:

- 1. Pig herds: 4-weeks old weaned piglets. Experimental period: 28 days after 7 days pre-feeding period.
- 2. The data shoulder with different lowercase letters indicate significant difference (p<0.05). The data shoulder with different capital letters indicate the extremely significant difference(P<0.01). Same for the following tables and graphs.



Figur 1. Effects of selenium yeast on selenium content in porcine milk and blood.

Note:

- 1. Pig herds: fifth parity Yorkshire sows. Feeding period: from the 86<sup>th</sup> day of pregnant to piglet weaning on 28th day after birth.
- 2. After the experiment, the blood samples were separately collected from piglet precaval vein and sow ear vein.

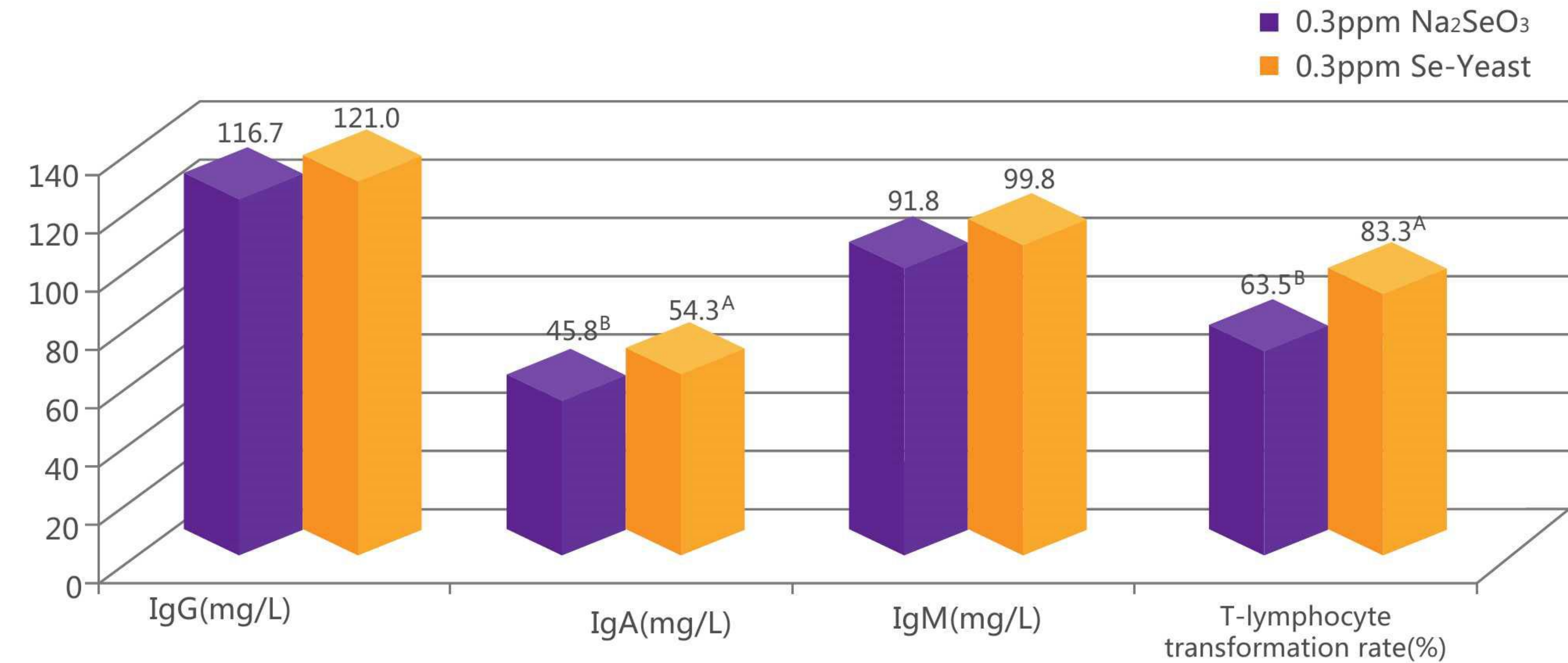


Table 2. Effects of different selenium sources on sow reproductive performance. (mean±SDM)

	0.3ppm Na <sub>2</sub> SeO <sub>3</sub>	0.2ppm Se-Yeast	0.5ppm Se-Yeast
Average litter size	9.1±1.2	9.0±1.3	8.8±1.7
Birth weight (kg)	1.21±0.02	1.28±0.05	1.34±0.08
Weaning weight (kg)	5.24±0.08 <sup>A</sup>	5.33±0.19 <sup>A</sup>	5.98±0.06 <sup>B</sup>
Sow lactation capacity (kg/d)	5.18±0.21 <sup>A</sup>	5.24±0.14 <sup>A</sup>	5.85±0.25 <sup>B</sup>

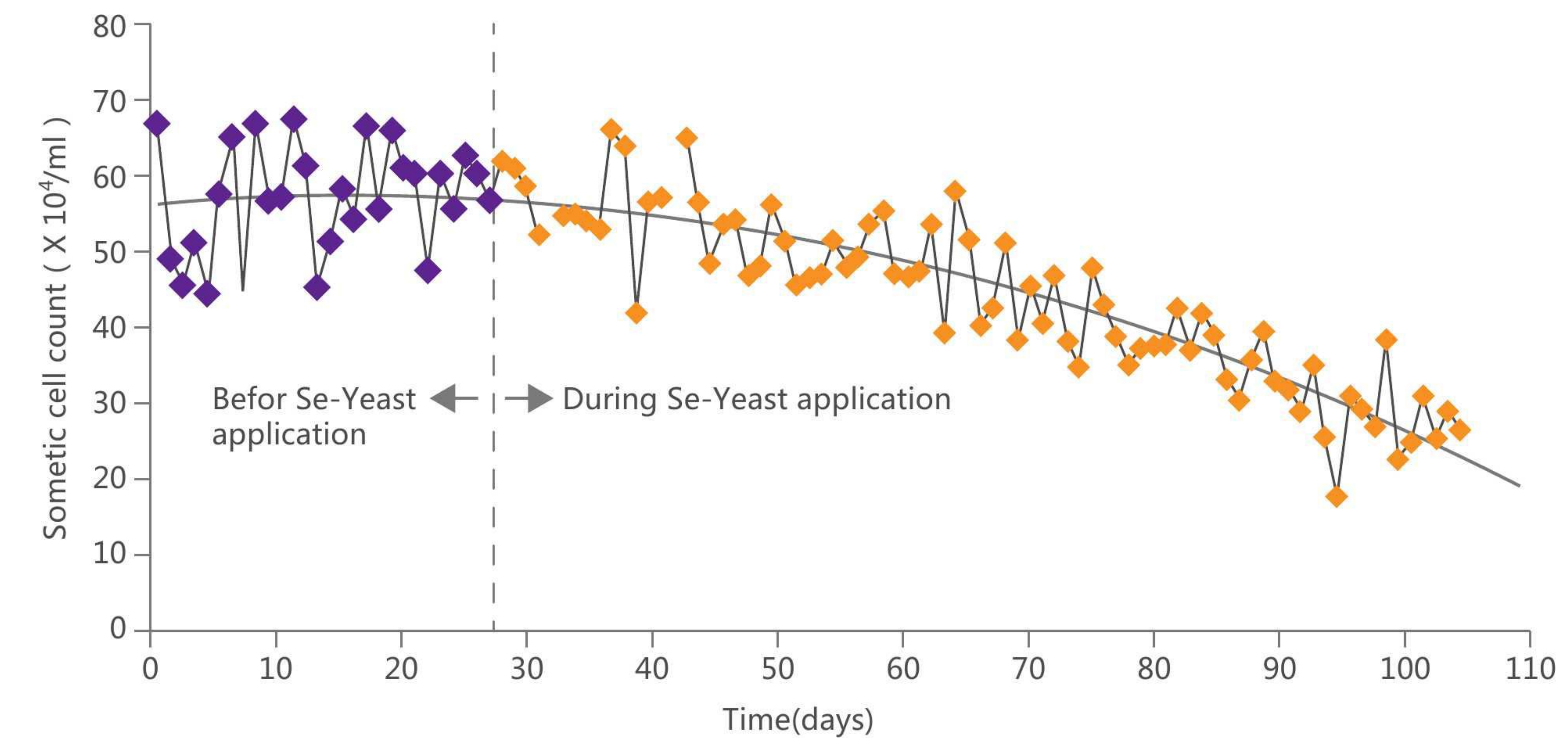
**Note:** Sow lactation capacity =(20 day total weaning weight-total weight at birth)×3/20

Fubon Selenium Yeast can increase immunity and improve anti-stress capacity.



Figur 2. Effects of different selenium sources on immunity parameters.

**Note:** Pig herds: DurocxLandracexYorkshire weaning piglets (4weeks old). Experimental period: 28 days after 7 days pre-feeding.



Figur 3. Effects of Fubon Selenium Yeast on somatic cell count of dairy milk





### Fubon Selenium yeast can improve the anti-oxidant capacity and meat quality.

Table 3. Effects of different selenium sources on anti-oxidant capacity.

Items	0.3ppm Na <sub>2</sub> SeO <sub>3</sub>	0.15ppm Se-Yeast	0.3ppm Se-Yeast	0.45ppm Se-Yeast
Total SOD activity in serum, U/ml	73.0	74.5	79.7	93.1
Total SOD activity in muscle, U/mg	202.20	227.83	221.10	249.90
MDA in serum,U/ml	6.5	4.5	4.4	3.7
MDA in muscle, U/mg	78.12	73.26	62.30	52.38
T-AOC in serume	8.6 <sup>b</sup>	9.9 <sup>b</sup>	19.4 <sup>a</sup>	21.5 <sup>a</sup>

**Note:** Pig herds :Duroc×Landrace×Yorkshire fattening pigs (62±2kg). Experimental period: 60 days after 7 days pre-feeding.

MDA: malondialdehyde , SOD: superoxide dismutase , T-AOC: total anti-oxidant capacity

Table 4. Effects of selenium yeast on blood anti-oxidant capacity of experimental mice.

	SOD(C/nmol/ml)	GSH-Px(U/ml)	MDA(C/nmol/ml)
Control group	206.7±33.7 <sup>A</sup>	66.9±21.9 <sup>a</sup>	16.4±1.7 <sup>a</sup>
Drench 107ug/kg.BW.d Se-Yeast	304.0±40.7 <sup>B</sup>	72.8±8.8 <sup>b</sup>	16.4±1.2 <sup>a</sup>
Drench 214 ug/kg.BW.d Se-Yeast	311.7±40.2 <sup>B</sup>	73.5±9.4 <sup>b</sup>	15.6±1.4 <sup>b</sup>

**Note:** Experimental animals:SPF KM mice, body weight 20-22g/head.

GSH-Px: Glutathione peroxidase. MDA: malondialdehyde

Table 5. Effects of dietary supplementation of different selenium sources on meat quality.

Items	0.3ppm Na <sub>2</sub> SeO <sub>3</sub>	0.3ppm Se-yeast	0.45ppm Se-yeast
Meat pH	6.21	6.38	6.33
Drip loss,%	5.13	4.40	3.80
Meat color scores	7.12	8.32	7.05

**Note:** Pig herds : Duroc×Landrace×Yorkshire fattening (62±2kg). Experimental period: 60 days after 7 days pre-feeding.



## Dosage and usage

Animals	Recommend dosage (g/t compound feed)	If the basal diet contain 0.1-0.3ppm sodium selenite, the recommended dosage is:
Breeders	150	100
Piglets and growing pigs	150	75-100
Broilers and laying hens	50-150	50-100
Aquaculture species	100-150	50-100
Dairy cow	300	100-200

**Note:** The total selenium content in feed cannot above 0.5ppm, and the selenium yeast should be added in the form of premix.

**Package** 25kg/bag with polyethylene liner.

**Storage** The shelf life is 24 months, please keep in a cool and dry place.

**Attentions** Please use up once it been opened or bind tightly after using.



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