

# Yeasel

Organic selenium from biofermentation





Organic selenium with high bioavailability

Safe and environmental-friendly



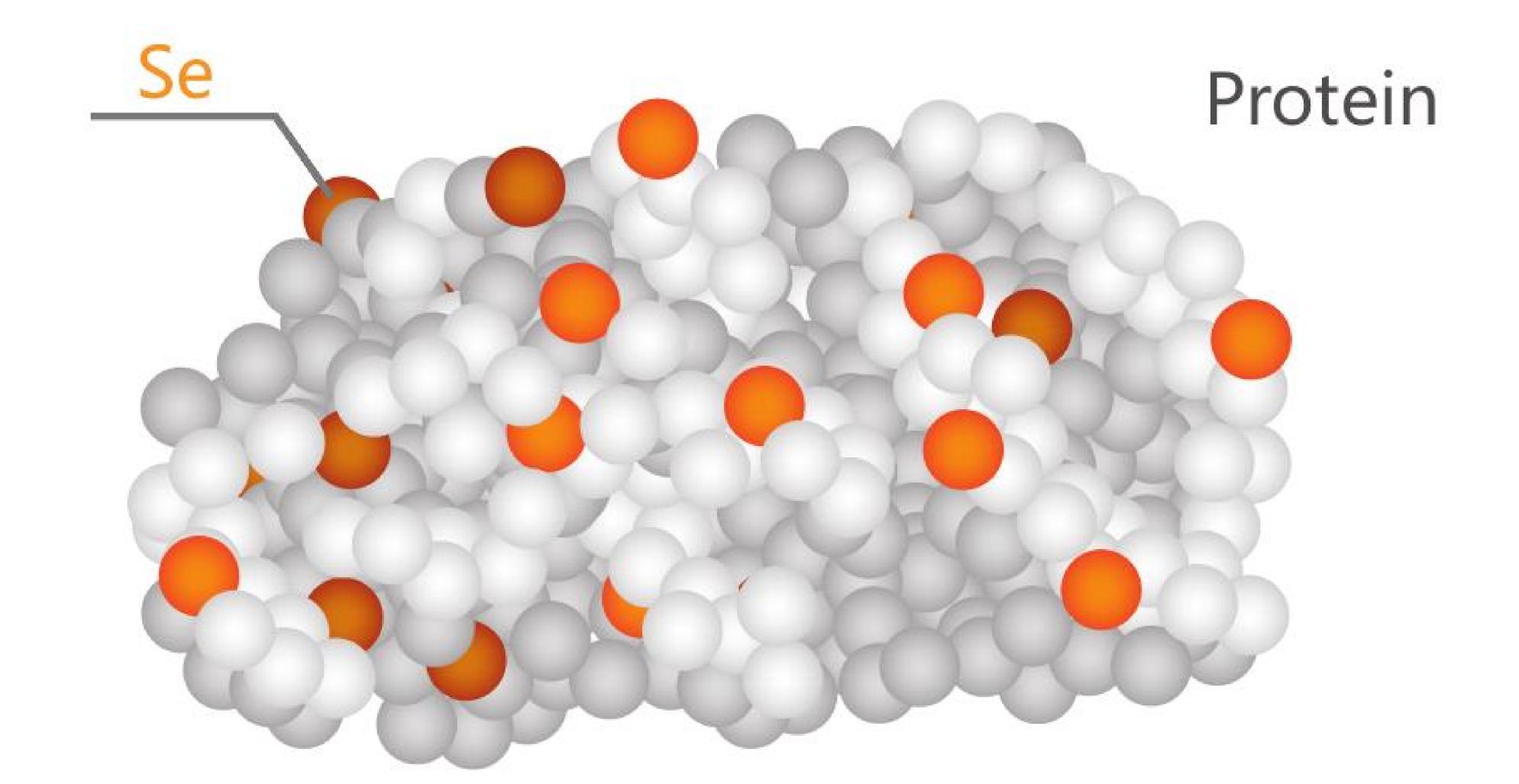


## Description

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

### Efficacy

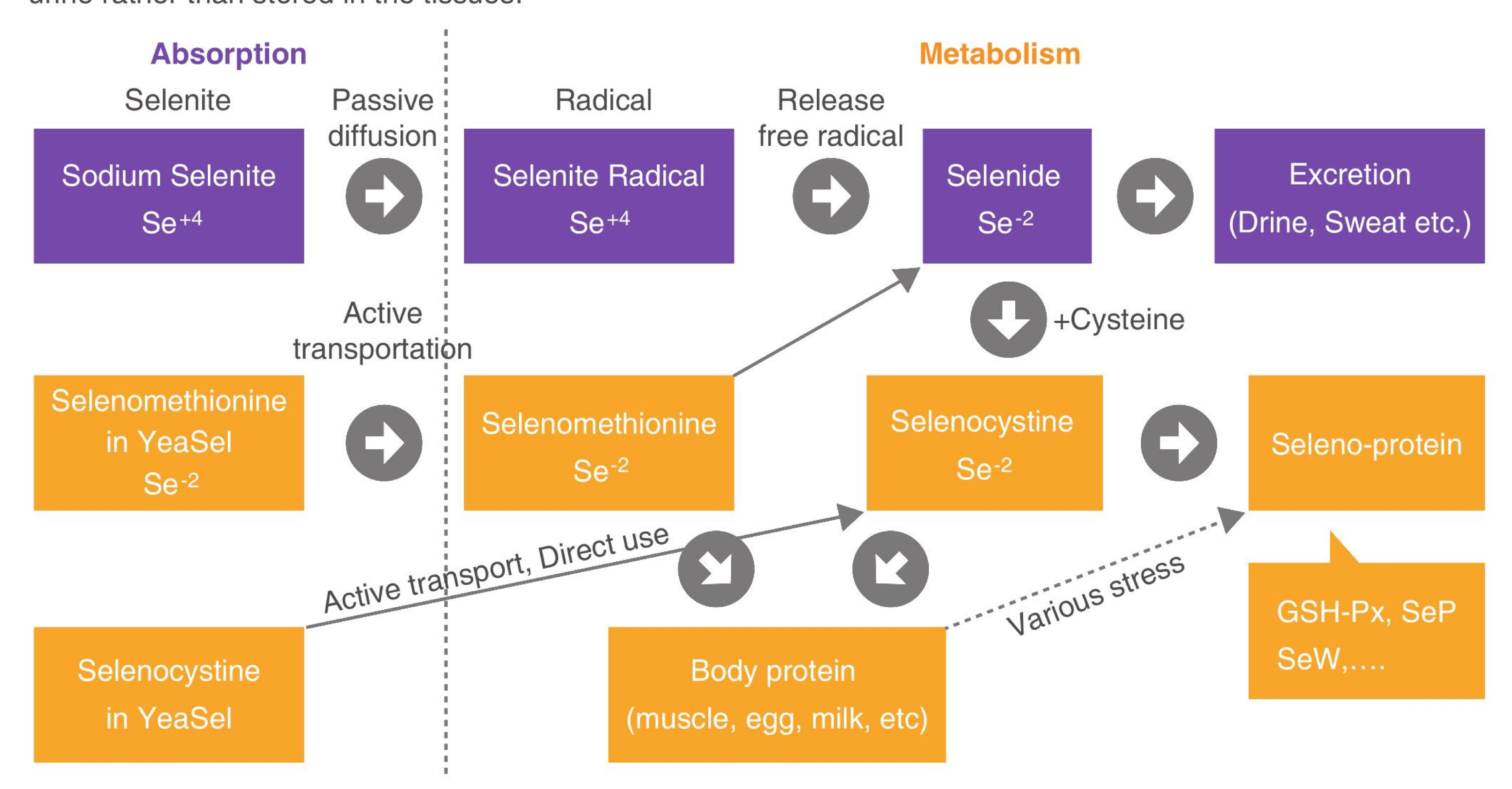
- Improve animal reproductive performance
- Relieve stress
- Reduce somatic cell counts in milk
- Improve carcass quality



### Wode of action

#### Improve selenium deposition and availability

The selenomethionine in YeaSel 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 or 3000mg/kg Organic selenium > 98%

### Application trials

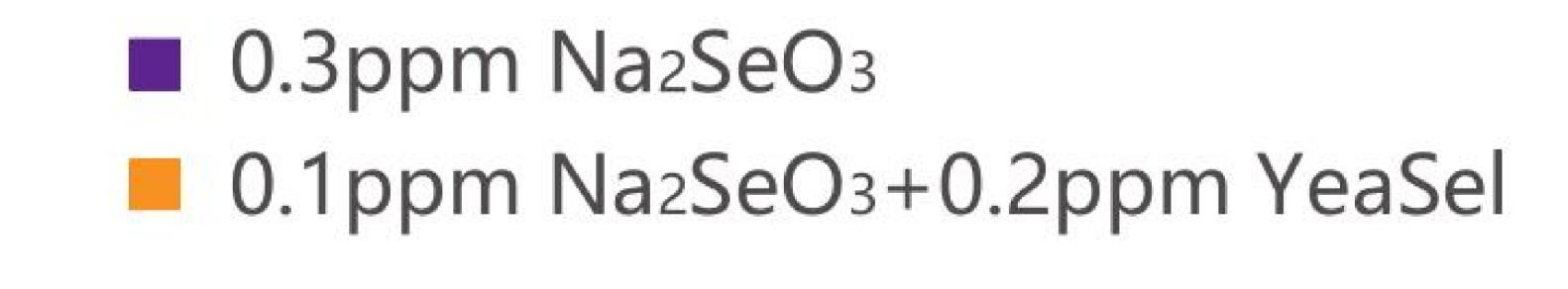
YeaSel can efficiently been absorbed and increase selenium deposition in body.

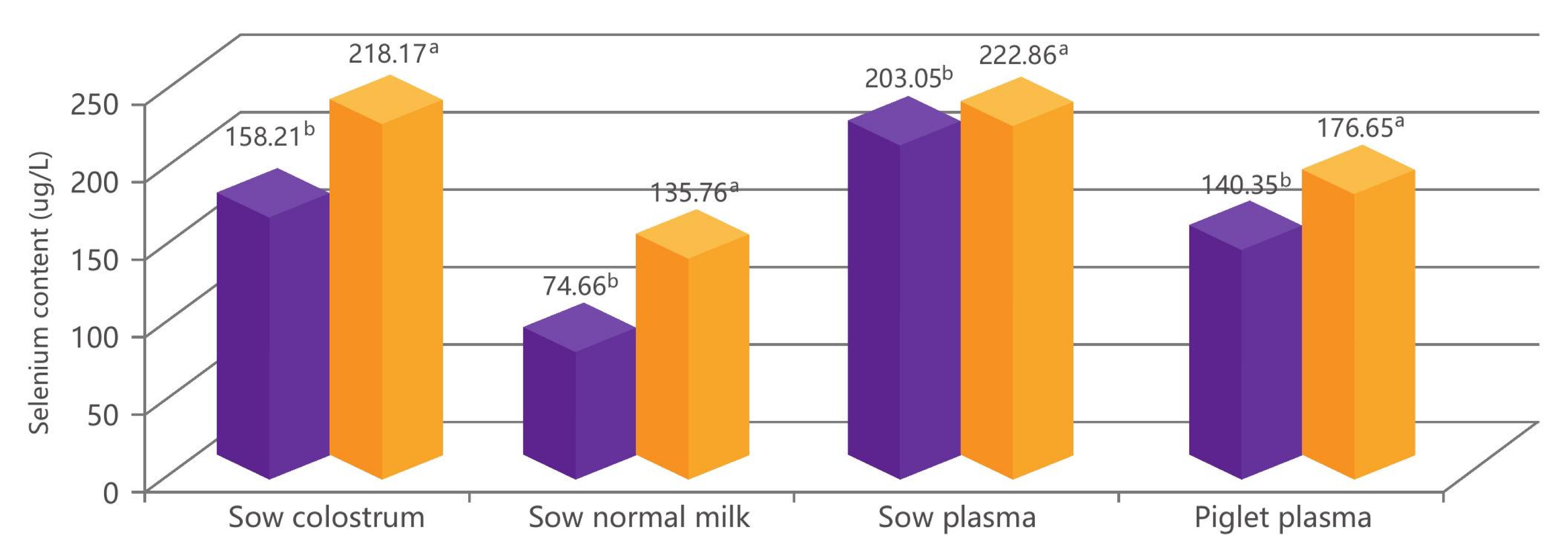
Table 1. Comparison of bioavailability of different type selenium resources. (Mean±SEM, %)

	0.3ppm Na <sub>2</sub> SeO <sub>3</sub>	0.2ppm Na2SeO3 + 0.1ppm YeaSeI	0.1ppm Na <sub>2</sub> SeO <sub>3</sub> + 0.2ppm YeaSeI	0.3ppm YeaSel
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°

#### 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.





Figer 1. Effects of YeaSel on selenium content in porcine milk and blood.

#### Note:

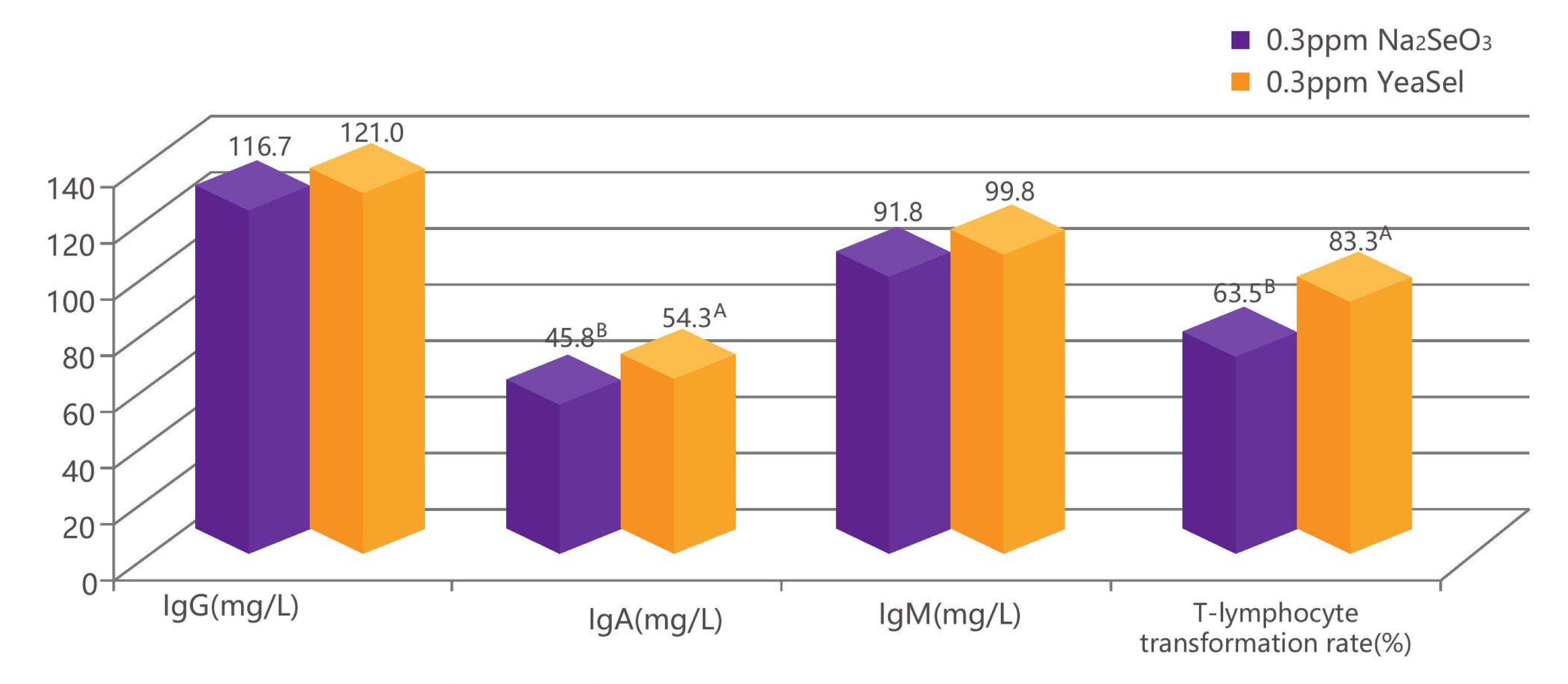
- 1. Pig herds: fifth parity Yorkshire sows. Feeding period: from the 86<sup>th</sup> day of pregnant to piglet weaning on 28th day after birth.
- 2. After the experiment, the blood samples were separately collected from piglet precaval vein and sow ear vein.

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 YeaSel	0.5ppm YeaSel
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>

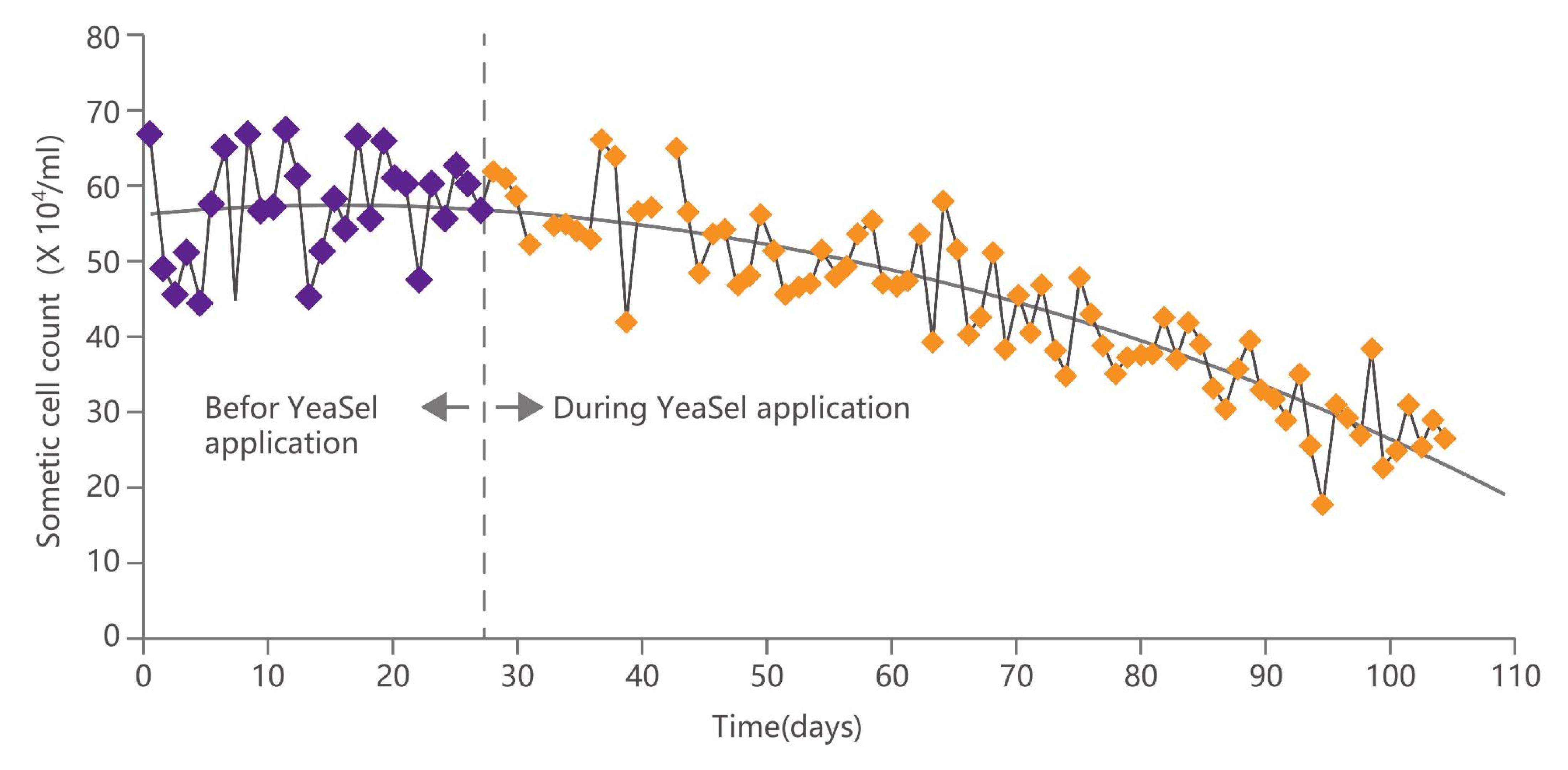
Note: Sow lactation capacity = (20 day total weaning weight-total weight at birth)×3/20

#### YeaSel can increase immunity and improve anti-stress capacity.



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

Note: Pig herds: Duroc×Landrace×Yorkshire weaning piglets (4weeks old). Experimental period: 28 days after 7 days pre-feeding.



Figer 3. Effects of YeaSel on somatic cell count of dairy milk



YeaSel 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 YeaSel	0.3ppm YeaSel	0.45ppm YeaSel
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 b	9.9 b	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 YeaSel on blood anti-oxidant capacity of experimental mice.

	SOD(C/nmol/ml)	GSH-Px(U/ml)	MDA(C/nmol/ml)
Control group	206.7±33.7A	66.9±21.9 <sup>a</sup>	16.4±1.7 <sup>a</sup>
Drench 107ug/kg.BW.d YeaSel	304.0±40.7 <sup>B</sup>	72.8±8.8b	16.4±1.2 a
Drench 214 ug/kg.BW.d YeaSel	311.7±40.2 <sup>B</sup>	73.5±9.4 b	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 supplimentation of different selenium sources on meat quality.

Items	0.3ppm Na <sub>2</sub> SeO <sub>3</sub>	0.3ppm YeaSel	0.45ppm YeaSel
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

	Recommend dosage		If the basal diet contain 0.1-0.3ppm sodium	
Animals	(g/t compound feed)		selenite, the recommended dosage is:	
	2000ppm	3000ppm	2000ppm	3000ppm
Breeders	150	100	100	60
Piglets and growing pigs	150	100	75-100	45-60
Broilers and laying hens	50-150	30-100	50-100	30-60
Aquaculture species	100-150	60-100	50-100	30-60
Dairy cow	300	200	100-200	60-120

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 tighly after using.



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