

# Пребиотики для животных YeaMOS, YeaBeta, YeaMOS S

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# Fubon Yeast Cell Wall

**Cost effective and functional prebiotic**

## Description

Fubon Yeast Cell Wall is a natural component derived from *Saccharomyces cerevisiae*. The main efficient components are mannan oligosaccharides and  $\beta$ -glucan. As a prebiotic, Fubon Yeast Cell Wall can improve intestinal health and bind mycotoxins, especially Zearalenone. In addition, Fubon Yeast Cell Wall can be used as carriers in animal health products for reducing cost and improve mixing uniformity.

## Functions

- ◎ Reduce cost
- ◎ Beneficial for intestinal health
- ◎ Bind mycotoxin
- ◎ Improve mixing uniformity



# YeaMOS

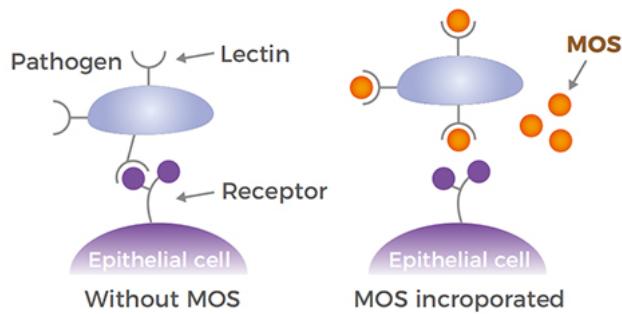
## Natural source of Beta-Glucan & MOS

### Description

**YeaMOS** is a natural component derived from *Saccharomyces cerevisiae*. The main efficient ingredients are  $\beta$ -glucan and mannan oligosaccharides. YeaMOS can increase immunity, block pathogens and bind mycotoxins (especially Zearalenone).

### Functions

- ◎ Balance intestinal microflora and enhance immunity
- ◎ Agglutinate pathogens



### Mode of action

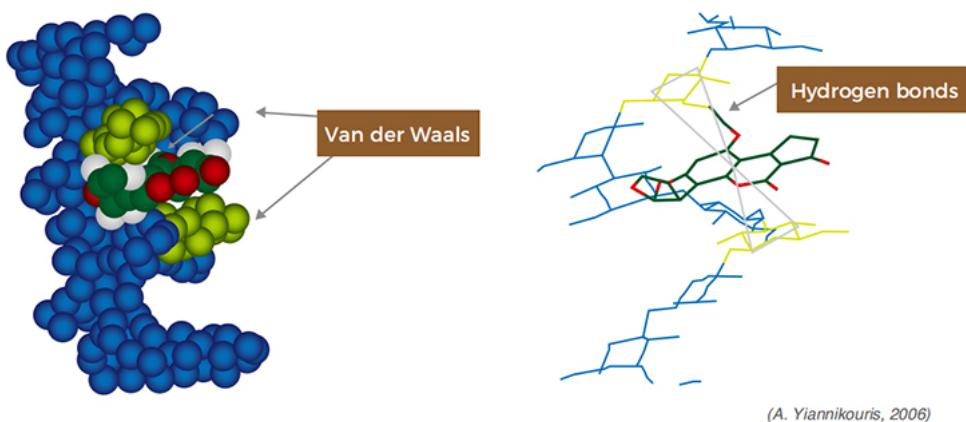
#### A. Agglutinate and excrete pathogens

The mannan oligosaccharides of yeast cell wall has similar structure with binding site of pathogens on the intestinal wall. Thus it competitively agglutinate pathogens and interfere with

the agglutinating between pathogens and intestinal wall. Furthermore, as the mannan cannot be digested by pathogens and intestinal enzymes, the tightly bound pathogen-mannan complex can be discharged from the body.

## B. Bind mycotoxins

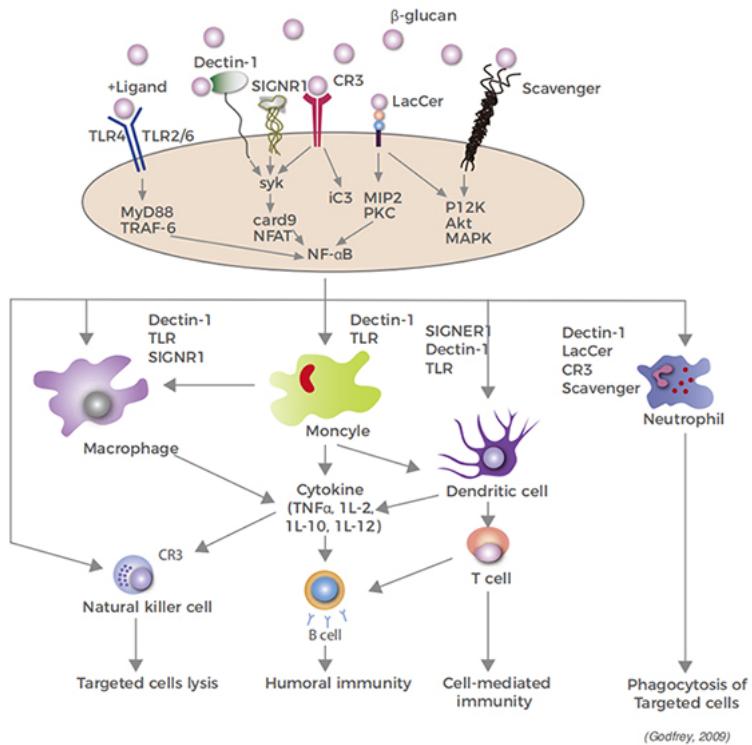
The special space structure of yeast cell wall provides lots of binding sites for different toxins, the intermolecular forces like hydrogen bonds and Van der Waals forces can help to reinforce the binding and form polysaccharides-toxin complex, which prevents the mycotoxin being absorbed.



(A. Yiannikouris, 2006)

## C. Stimulate immune system

$\beta$ -glucan can bind to the surface receptor of immune cells, exciting the immune relate signal transmission channel, stimulate immune cells to release downstream signal molecule, and induce the specific and non-specific immune response.



## Applications

### A. YeaMOS can agglutinate pathogens

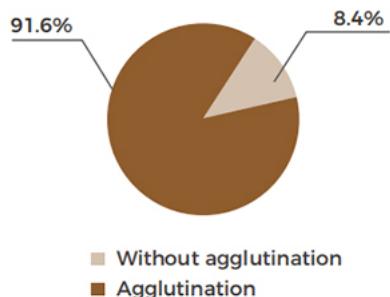


Figure 1 Absorbility of *Salmonella* spp *in vitro*

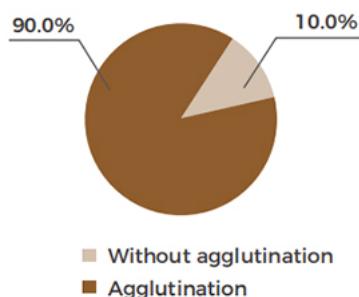


Figure 2. Absorbility of *E. Coli* *in vitro*  
(Sydney Hertz Alves et al., 2009)

### B. Bind several kinds of mycotoxins, especially zearalenone

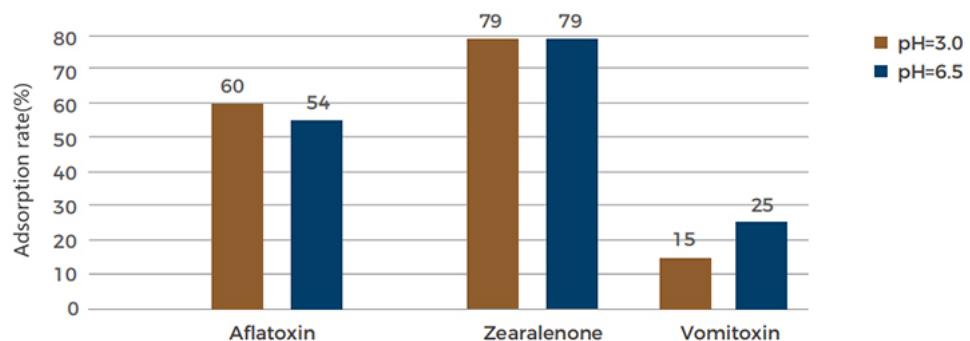


Figure 3. The mycotoxin adsorption rate of YeaMOS under different pH

(George Rottinghaus, 2009)

## C. Stimulate immune system, improve both specific and non-specific immune response

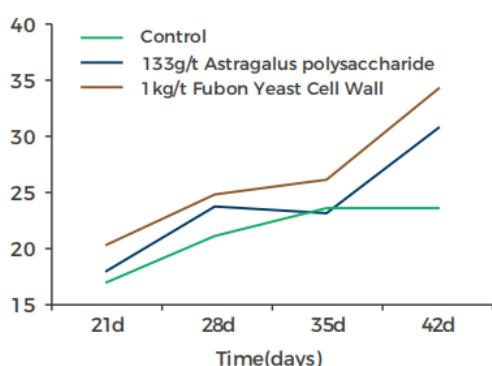


Figure 4. Influence on the globulin content in broiler serum

Note: Two hundred 21 days-old broilers , trials were performed 21ds.

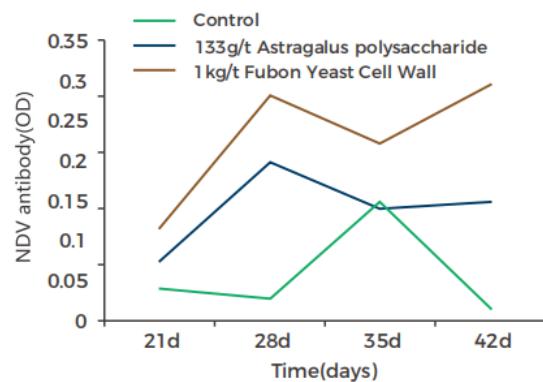


Figure 5. Influence on the NDV antibody levels of broiler serum

(Li chunsong, 2012)

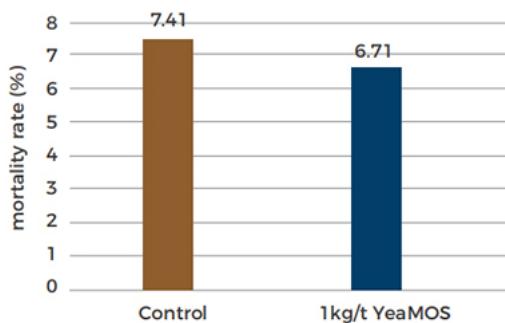


Figure 6. Influence of YeaMOS on the broiler mortality

Note: 600 day-old broilers, trials were performed 42ds.

(Huang Xin, 2013)

## D. Relieve stress, improve the survival rate

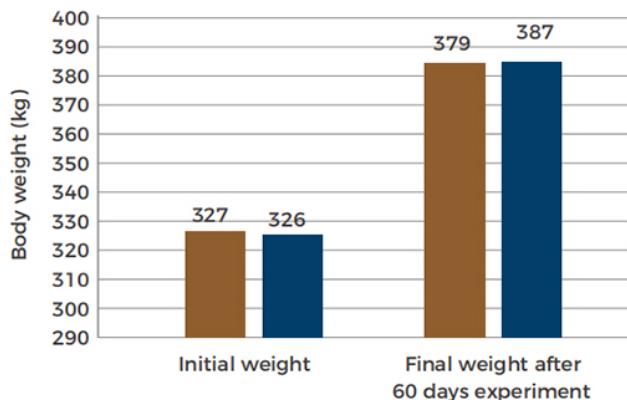
Table 1. Effects of YeaMOS on the mortality after challenged with pathogenic bacteria for different aquatic species

Species	Challenge test for 14d	Doasge of YeaMOS	Average mortality, %	References
Penaeus vannamei	Vibrio harveyi	0	93.33a	(Chen CF, 2004)
		0.67%	30.0b	
Koi	Aeromonas veronii	0	68.6±1.8a	(Lin, 2011)
		0.2%	36.9±0.9b	
Grass carp	Flavobacterium columnare	0	93.3a	(Chen CF, 2008)
		0.2%	36.7b	

Note: After 55ds, 100 grass carp were randomly selected and marked. All fishes were put in the same tank without aerator.

After long distance transportation till more than half fish are dead. Count the number of dead fish in different groups.

## E. Improve production performance



**Figure 7. Influence of Fubon Yeast Cell Wall on weight gain of beef cattle**

(George Rottinghaus, 2009)

■ Control  
■ 20g YCW/head/day

## Dosage

Species	Benefits	Dosage
Piglet	Relieve stress (weaning, transport), stabilize production Prevent disease, replace antibiotics.	1-2kg/t
Sow	Enhance immunity. Bind mycotoxins, reduce the toxic influence on reproductive performance.	1~1.5kg/t
Broiler	Relieve stress, stabilize production. Prevent disease, reduce mortality.	0.5-1kg/t
Layer	Relieve stress , stabilize production. Stable laying rate and prolong the peak of laying.	0.5kg/t
Aquaculture	Improve survival rate. Relieve stress, enhance the ability to adapt to the environment.	1~2kg/t
Calves	Promote rumen development, improve daily gain.	1kg/t



# YeaBeta

**Natural immunity enhancer**

## Description

**YeaBeta** is purified from yeast cell wall of specially fermented *Saccharomyces cerevisiae*, which could serve as a biological response stimulator to strengthen immune defenses, control diseases and improve animal production performance.

## Functions

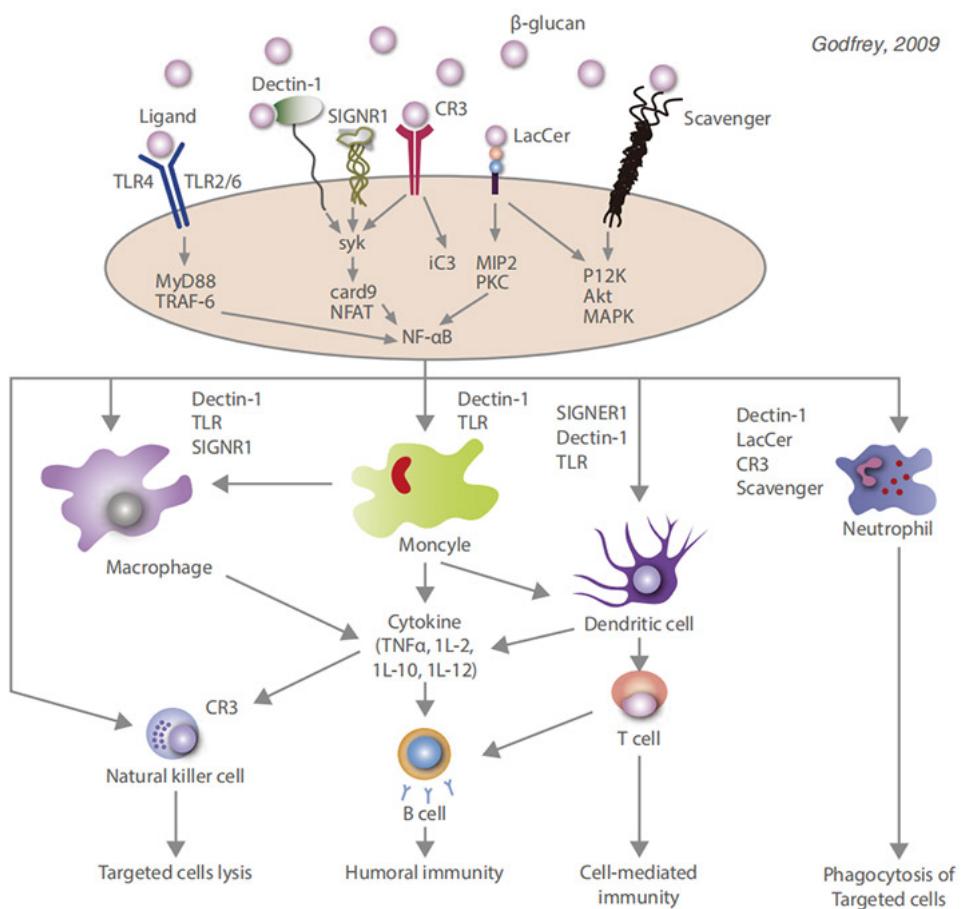
- ◎ Improve immunity and increase productivity
- ◎ Improve herd health, decrease risk of disease

## Mode of action

### Strengthen immunity

Beta glucan is ubiquitously found in both bacteria or fungal cell walls and is connected with have been implicated in the initiation of anti-microbial immune response. Beta glucan acts on several immune receptors including DECTIN-1, complement receptors (CR3) and Toll-like receptors (TLR-2/6) and trigger a group of immune cells including macrophages,

neutrophils monocytes, matural killer cell and dendritic cells. Low dosage of  $\beta$ -glucan can keep the immune system alert and making the host quickly react to invasive organism.



#### Application trails

## Strengthen immunity and decrease disease risk

Table 1. Effects of YeaBeta on growth performances of broiler coinfected with *Eimeria* spp. and *Clostridium perfringens*

Item	NE	0~42d Feed intake, g/bird	0~42d BW gain, g/bird	FCR
Glucan, mg/kg				
0	-	4013.7	2291.0	1.75
0	+	3991.9	2248.2	1.78
200	-	4029.1	2378.5	1.69
200	+	4017.5	2321.8	1.74

Table 2. Necrotic enteritis (NE) lesion scores of broilers after infection treated with YeaBeta

Item	NE	Lesion scores			
		Duodenum	Jejunum	Ileum	Small intestine
Glucan, mg/kg					
0	-	0.85 <sup>c</sup>	0.42 <sup>c</sup>	0.00 <sup>c</sup>	0.42 <sup>c</sup>
0	+	2.35 <sup>a</sup>	1.85 <sup>a</sup>	0.92 <sup>a</sup>	1.71 <sup>a</sup>
200	-	0.55 <sup>c</sup>	0.27 <sup>c</sup>	0.00 <sup>c</sup>	0.27 <sup>c</sup>
200	+	1.68 <sup>b</sup>	0.91 <sup>b</sup>	0.51 <sup>b</sup>	1.03 <sup>b</sup>

Table 3. Effect of dietary YeaBeta on anti-Cp specific IgA content in the jejunum and anti-Cp specific IgG level in serum of broiler

Item	NE	IgA			IgG		
		7d	14d	21d	7d	14d	21d
Glucan, mg/kg							
0	-	1.04	1.06	1.76	0.83	1.49	1.92
0	+	1.23	1.09	1.64	0.90	1.75	2.00
200	-	1.18	1.37	1.37	0.85	1.52	1.74
200	+	1.37	1.47	1.68	0.99	1.87	2.22

Note: Animal:Two hundred and forty 1-day-old male broiler chicks.

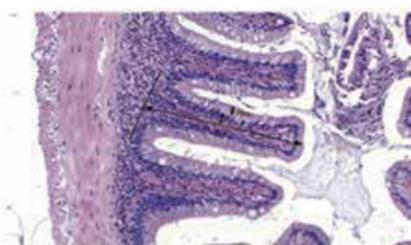
The data shoulder with different lowercase letters indicate significant difference (P<0.05).

## Improve fillet quality, intestine development, antioxidant capacity and immunity

Table 4. Effects of YeaBeta on fillet quality of *Pengze crucian carp*

Parameters	Control	$\beta$ -glucan(1g/kg)
Hardness	614.45±26.64 <sup>a</sup>	1009.64±50.99 <sup>b</sup>
Springiness	0.74±0.03 <sup>a</sup>	0.90±0.02 <sup>b</sup>
Cohesiveness	0.53±0.02 <sup>a</sup>	0.59±0.01 <sup>b</sup>
Gumminess	322.96±18.52 <sup>a</sup>	592.64±11.71 <sup>b</sup>
Chewiness	239.52±21.25 <sup>a</sup>	531.63±16.28 <sup>b</sup>
Resilience	0.34±0.03 <sup>a</sup>	0.68±0.02 <sup>b</sup>

Table 5. Effects of YeaBeta on mid-intestinal morphology of *Pengze crucian carp*



Parameters ( $\mu\text{m}$ )	Control	$\beta$ -glucan(1g/kg)
Fold height	293.38±11.41 <sup>a</sup>	379.11±9.66 <sup>b</sup>
Enterocyte height	44.94±1.28	47.3±1.69
Microvillus height	19.34±0.51	19.87±0.43

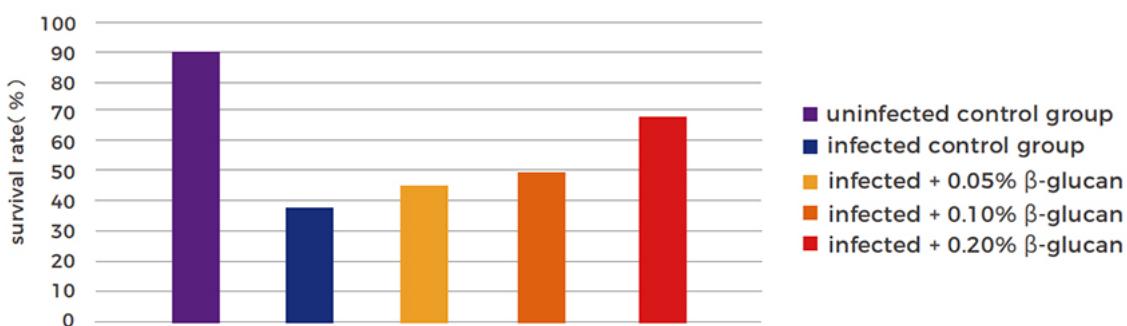
Table 6. Effects of YeaBeta on mid-intestinal antioxidant enzymes activities of Pengze crucian carp

Parameters ( $\mu\text{m}$ )	Control	$\beta$ -glucan(1g/kg)
GSH ( $\mu\text{mol/gprot}$ )	$32.83 \pm 1.08^{\text{a}}$	$137.14 \pm 3.25^{\text{b}}$
CAT (U/gprot)	$41.85 \pm 2.22^{\text{a}}$	$78.03 \pm 4.77^{\text{b}}$
T-SOD (U/mgprot)	$27.50 \pm 1.62^{\text{a}}$	$48.68 \pm 6.70^{\text{b}}$
MDA (nmol/mgprot)	$30.41 \pm 2.01^{\text{b}}$	$21.66 \pm 0.83^{\text{a}}$

Note: 180 (mean initial weight  $12.89 \pm 0.04$  g) Juvenile Pengze crucian carp (*Carassius auratus var Pengze*).

The data shoulder with different lowercase letters indicate significant difference ( $P < 0.05$ ).

Fig 1. Effect of YeaBeta dosages on survival rate of rainbow trout infected by *Aeromonas salmonicida*



Note: 1200 (mean initial weight  $203 \pm 18$ g) rainbow trout

The data shoulder with different lowercase letters indicates significant difference ( $P < 0.05$ ).

## Improved health condition

Table 7. Effects of YeaBeta on health condition of companion animals

Reference	Year	Animal	Effects
Thiago et al	2018	Dog	Decrease cholesterol, triglyceride and body weight.
Anton et la	2014	Dog	Relieve arthritis in dogs. Relieve enteritis and allergic skin diseases.
Fernando et al	2017	21d pup	Enhance the specific and nonspecific immunity.
Pauline et al	2012	Dog	Alleviate the clinical symptoms of arthritis in dogs. Improve immunity in young pets. Increase antibody levels after vaccination.

## Dosage

Animal	Aquaculture	Pets	Swine	Poultry
Dosage (g/t complete feed)	200~1000	500~1000	100~150	100~150

**Storage and Packaging**

Store in a cool and dry place.

Packaging: 20KG paper bag with polyethylene liner.

Shelf life: 24 months from production date when stored in its original packaging.



# YeaMOS S

## High concentrated yeast mannan oligosaccharides

### Description

**YeaMOS S** is a high concentrated mannan-oligosaccharides purified from premium yeast cell walls derived from primary cultivated *Saccharomyces cerevisiae*. It can be used in watering system as YeaMOS S is completely water soluble.

### Functions

- ◎ Agglutinate pathogens and prevent pathogens from agglutinate to gut receptors
- ◎ Balance intestinal microflora
- ◎ Increase resistance against microbial infections

### Applications

<b>Piglet</b>	Relieve stress(weaning, transport), stabilize production Prevent disease, replace antibiotics
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	Enhance immunity
<b>Sow</b>	Bind mycotoxins, reduce the harmful influence on reproductive performance
<b>Poultry</b>	Relieve stress, stabilize production Prevent disease, reduce mortality
<b>Aqua</b>	Improve the survival rate under stress

#### **Storage and Packaging**

Store in a cool and dry place.

**Packaging:** 20KG paper bag with polyethylene liner.

**Shelf life:** 24 months from production date when stored in its original packaging.

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