



BIOGROWING PROBIOTIC BROCHURE

—Animal Health & Agriculture



BIOGROWING

BIOGROWING GROUP

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Probiotics **industry leader**

Innovation | Quality | Reliability | Customer Focus





About BioGrowing

BioGrowing Group comprises different companies:

- 1. Shanghai Shining Biology**
Established in 1998, it manufactures branded probiotic healthcare products aimed at cardiovascular and digestive systems for the domestic Chinese markets.
- 2. BioGrowing (Shanghai) Co. Ltd.**
Established in 2006, BioGrowing Shanghai Co. Ltd. focuses on application technology and provides a complete line of probiotics products for clients in Chinese and global markets.
- 3. Yi Zhi Nong:**
Established in 2009, Yi Zhi Nong focuses on probiotics applications for animal nutrition and agriculture domains in Chinese and global markets.

About BioGrowing

With its market in over 47 countries, BioGrowing is a reputed global probiotics player providing comprehensive probiotic solutions, and it has been operating since 2006. Our business encompasses probiotic products for functional foods, dairy, healthcare, and agricultural domains. Both our headquarters and our GMP compliant factory with 300 tons/year capacity are located in Shanghai, China. In addition, we have two other manufacturing facilities in China, through which we have been supplying probiotic formulations in the domestic Chinese market since the 1990s.



Vision

We are committed to lead the research and development of global probiotics industry and bring to our clients, comprehensive probiotic solutions that reflect latest breakthroughs and innovations in the probiotics domain.

BioGrowing Advantage

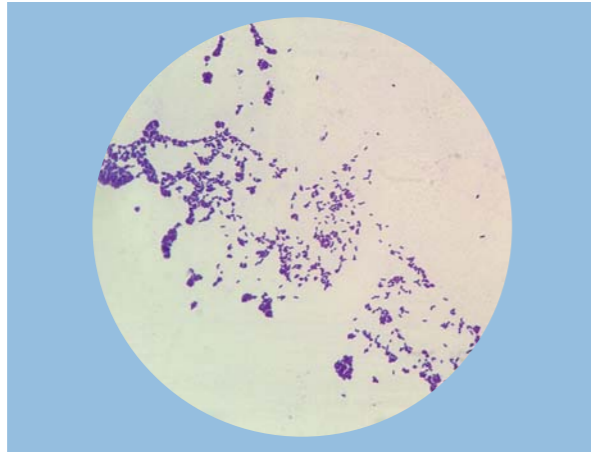
- BioGrowing' s R&D and technical support team comprises of scientists and technicians with doctorates and master' s degrees in the domains of microbiology, medicine, pharmacy, bio-chemistry, food science, and nutrition science. BioGrowing owns a production line capable of producing 300 tons of highly active freeze-dried probiotic powder.
- BioGrowing also has a robust quality management system that ensures superior product quality.

Qualification

Production lines are certified to meet the criteria set by CFDA-GMP/QS, ISO/HACCP, NSF-CGMP, Halal, etc.



What are probiotics?



Some of the applications of probiotics in the animal nutrition and agriculture include:

- (1) Veterinary
- (2) Direct Fed Microbes (DFMs) or other functional feed additives
- (3) Feed or silage starter cultures
- (4) Water purificants
- (5) Biological fertilizers
- (6) Dietary supplements for pets

Probiotics Background

Human-beings and our animal friends have been inhabiting this world with microbes since billions of years. There are more than 1,000 different species of bacteria, fungi, and viruses living in the human body, comprising over 100 trillion CFU. These microbes, friendly and pathogenic, form a delicate and dynamic balance as they compete to colonize and survive in our bodies. Most microbes in the human body commonly reside in mouth, pharynx, respiratory system, gastro-intestinal tract, urogenital tract, and skin. Our gastro-intestinal tract is the biggest and most complicated ecosystem for the microbes in general and bacteria in particular.

Just like the gastro-intestinal tract of human beings, gastro-intestinal tract of animals is also colonized with bacteria, viruses, and protozoa – some of which are also pathogens. Their gastro-intestinal tract has a sophisticated system to counter these potential pathogens consisting of physical, chemical, and immunological lines of defense. Commensal bacteria are an important part of this system.

These microbes participate the host body's metabolism by producing metabolic ingredients such as organic acids (especially lactic acid and acetic acid etc.), synthesizing vitamins, enzymes, antibodies, and regulating the metabolism and synthesis of sugar, fat, protein. The host body's health for a large part is related with the resident microbes' health and composition. When the balance of the friendly microbes and pathogenic microbes is disturbed, the host body becomes prone to diseases or other health challenges. Having an optimal number of friendly microbes (probiotics) colonizing our gastrointestinal tract helps us prevent diseases and is good for our health.

Probiotics

It can consume carbohydrates, produce lactic acid, short chain fatty acids and other organic acids, These organic acids can effectively reduce intestinal pH and inhibit the growth of pathogenic bacteria. Short-chain fatty acids can also promote the proliferation of intestinal cells, affect differentiation, and thus promote digestion and absorption of intestinal function.

Probiotics can also compete to inhibit the growth of pathogenic bacteria by effectively harvesting nutrients through colonization. When probiotics predominate, they can form natural barriers in the intestinal tract to ensure intestinal health.

Probiotics also improve the immunity of humans and animals in the body, which is particularly important for infants and young animals. These miraculous beneficial bacteria directly affect the release of immunoglobulins and other immune factors by metabolites through signaling pathways, thereby enhancing immunity and reducing the risk of disease infection.

Human and animal intestinal flora is not invariable, will be affected by disease, stress, metabolic disorders, antibiotic use and other factors, when the healthy intestinal flora is destroyed, the body's digestive function will be affected, serious or even diarrhea or infectious diseases, therefore, it can promote the intestinal tract balance of bacteria and maintenance of intestinal health by supplying probiotics appropriately.

Probiotics Category

The most popular probiotics used in agriculture mainly include:

- ◆ Lactic Acid Bacteria (*Lactobacillus* spp, *Bifidobacterium* spp, *Coccus* spp, etc.)

- ◆ *Bacillus* spp. of bacteria

- ◆ Yeast, especially *Saccharomyces Cerevisiae*

Different microbes have different characters, metabolism mechanisms, production technology, and application requirements. While developing probiotic formulations it is important to consider the above-mentioned criteria for great results.

◆ Lactic Acid Bacteria

Following are some of the Lactic Acid Bacteria that are commonly used in agriculture and animal care:

Lactobacillus spp: *Lactobacillus acidophilus*, *Lactobacillus plantarum*, *Lactobacillus rhamnosus*, *Lactobacillus casei*, *Lactobacillus paracasei*, *Lactobacillus fermentum*, *Lactobacillus helveticus*, *Lactobacillus buchneri*, etc.

Bifidobacterium spp: *Bifidobacterium animalis*, *Bifidobacterium bifidum*, *Bifidobacterium longum*, etc.

Coccus spp: *Enterococcus faecium*, *Enterococcus faecalis*, *Lactococcus lactis*, *Lactococcus cremoris*, etc.

Most of the above lactic acid bacteria can be found in gastro-intestinal tract of human beings and other mammals. Their metabolic mechanism indicates that they can

- Produce organic acids such as lactic acid and acetic acid along with short-chain fatty acids, which inhibit the growth of potential pathogens

- Produce enzymes to synthesize vitamins that help bolster immunity, reduce diarrhea, improve absorption of nutrients, and reduce the risk of infections.

Most of the lactic acid bacteria are fermented and freeze-dried, but some *Lactococcus lactis* can be obtained via spray dried technology.

◆ Bacillus

The microbes of *Bacillus* in spore form have a protection shell and they can sustain extreme pressure, heat, and moisture. They are the most stable probiotics in the world and even though they do not reside in the gastro-intestinal tract for a long time, they provide many benefits while in transit. In their host's body, they produce lactic acid, acetic acid and some short-chain fatty acids, to inhibit the growth of harmful bacteria. They also produce enzymes such as amylase and lipase to reduce the risk of diarrhea and other infections. They quickly consume the oxygen in the host gastro-intestinal tract and help boost the growth of other bacteria that form gut flora.

Bacillus bacteria are also used in aquaculture, where they play the role of water purificants and regulators. They can digest the aquatic feces and feed residual to improve the water quality. They also act as probiotics in aquatic animals' gastro-intestinal tract.

◆ Yeast

Yeast has been used in the human food industry for centuries. Both the live and dead yeast provide health benefits to human beings. The most common yeast species used for agriculture and animal care domain is the *Saccharomyces cerevisiae*. Probiotic yeasts become metabolically active in the stomach and the small intestine after ingestion but they die off in the lower sections of the intestine. Their most important activity, the usage of oxygen, is especially important in the fore stomachs of ruminants.

Thus, they change the reduction-oxidation potential and create unfavorable conditions for aerobic species of pathogenic bacteria.

Saccharomyces cerevisiae is mainly obtained via spray dried technology.

Feature summary

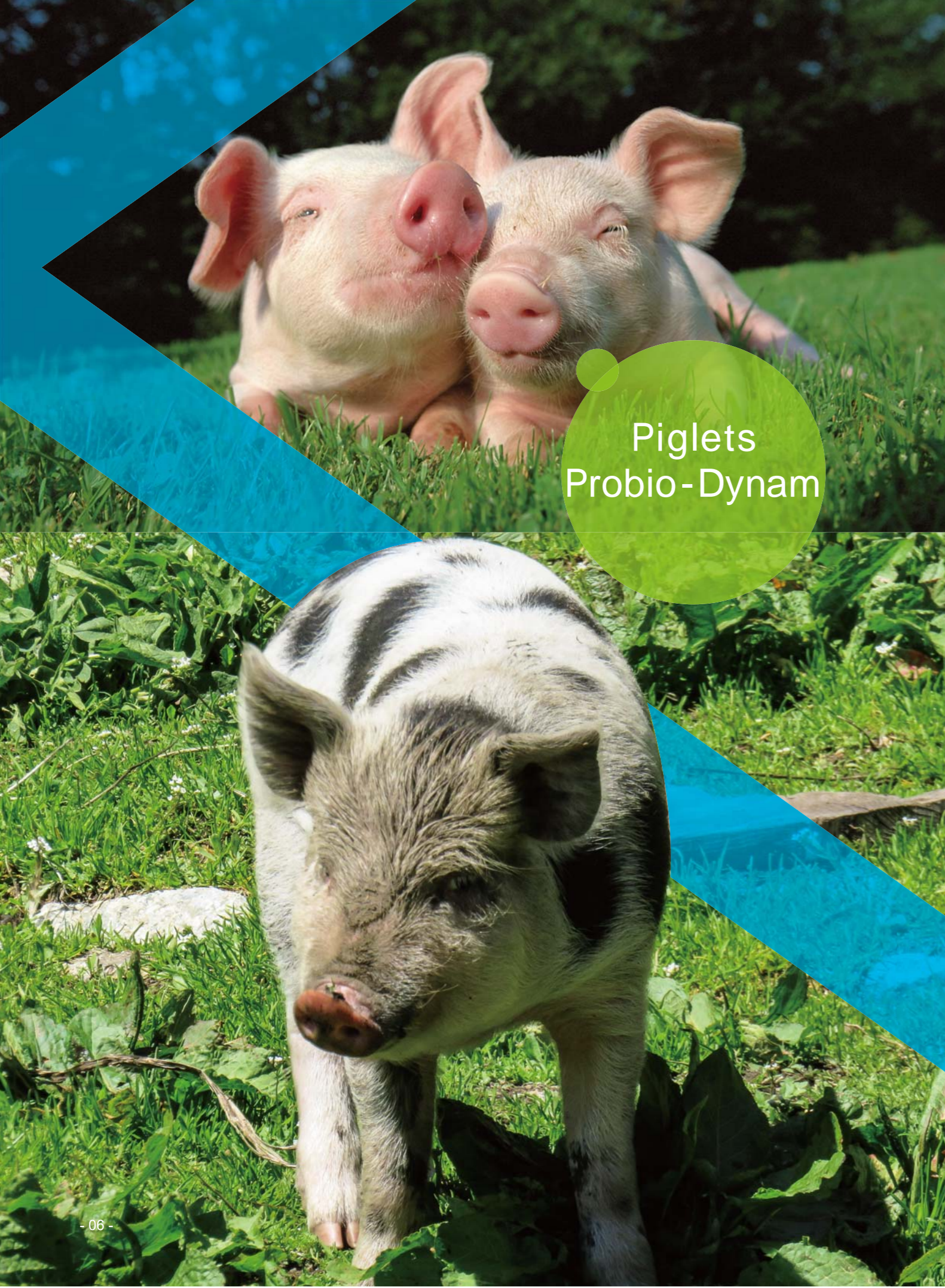
Microbes	Lactic Acid Bacteria (<i>Lactobacillus</i> spp, <i>Bifidobacterium</i> spp, <i>Lactococcus</i> spp.)	Lactic Acid Bacteria (<i>Enterococcus</i> spp)	Yeast	Bacillus
Production Technology	Freeze dried	Spray dried Freeze dried	Spray dried	Spray dried
Characters	- Anaerobic, Inhabitants of the gastro-intestinal tract of animals - Most potent participant in their host's metabolism.	- Facultative anaerobic, Inhabitants of gastro-intestinal tract of animals - Conditional pathogens - Neutral bacteria in most of the cases, which lead to the risk of antibiotic resistance.	- Facultative anaerobic - Oxygen consumption - Gas production - Enzyme production promoting the growth of lactic acid bacteria, and can not be planted.	- Found in spore form and are very stable in the host body - Transient bacteria - Can consume oxygen and promote the growth of probiotic Lactic Acid Bacteria. - Can also play similar role that lactic acid bacteria in the host's body, but are unable to colonize the host's gut.
Handling requirements	- Not suitable for pelleting or heat processing - Need freezing or cool storage.	- Can be quickly processed for pelleting but cannot be heated for a long time -It can be stored at room temperature, but better in refrigeration.	- Can be quickly processed for pelleting but cannot be heated for a long time - It can be stored at room temperature, but better in refrigeration.	- Can be processed under high-pressure, high temperature and can undergo pelleting process - No special requirement for the storage.
Applicated targets	Poultry ruminants swine pets other mammals	Poultry ruminants swine pets other mammals	Poultry ruminants swine pets other mammals	Poultry ruminants swine pets other mammals aquatic livestock environment protection plants and crop application biological fertilizer
Safety EU-QPS list	<i>L.acidophilus</i> <i>L.plantarum</i> <i>L.casei</i> <i>L.paracasei</i> <i>L.rhannosus</i> <i>L.fermentum</i> <i>L.helveticus</i> <i>L.buchneri</i> <i>B.bifidum</i> <i>B.longum</i> <i>B.breve</i> <i>L. lactis</i> <i>Staphylococcus Lactococcus</i>	<i>E.faecium</i> <i>E.faecalis</i>	<i>S.cerevisiae</i>	<i>B.subtilis</i> <i>B.licheniformis</i> <i>B.coagulans</i> <i>B.cereus</i> <i>C. butyricum</i>



BioGrowing Code	Strain's Generic Name	Chinese Name	Potency(CFU/g)
LA-G80	<i>Lactobacillus acidophilus</i>	嗜酸乳杆菌	2.0*10 ¹¹
Lp-G18	<i>Lactobacillus plantarum</i>	植物乳杆菌	5.0*10 ¹¹
Lr-G14	<i>Lactobacillus rhamnosus</i>	鼠李糖乳杆菌	5.0*10 ¹¹
LC-G11	<i>Lactobacillus casei</i>	干酪乳杆菌	3.0*10 ¹¹
LPc-G110	<i>Lactobacillus paracasei</i>	副干酪乳杆菌	3.0*10 ¹¹
LH-G51	<i>Lactobacillus helveticus</i>	瑞士乳杆菌	1.0*10 ¹¹
LF-G89	<i>Lactobacillus fermentum</i>	发酵乳杆菌	1.0*10 ¹¹
LB-G302	<i>Lactobacillus buchneri</i>	布氏乳杆菌	2.0*10 ¹¹
BB-G90	<i>Bifidobacterium bifidum</i>	两歧双歧杆菌	2.0*10 ¹¹
BL-G101	<i>Bifidobacterium animalis (B.lactis)</i>	乳双歧杆菌	5.0*10 ¹¹
BL-G301	<i>Bifidobacterium longum subsp.longum (B.longum)</i>	长双歧杆菌	1.5*10 ¹¹
BB-G95	<i>Bifidobacterium breve</i>	短双歧杆菌	3.0*10 ¹¹
LLL-G25	<i>Lactococcus lactis</i> subsp. <i>lactis</i>	乳酸乳球菌乳酸亚种	2.0*10 ¹¹
LLC-G42	<i>Lactococcus lactis</i> subsp. <i>cremoris</i>	乳酸乳杆菌乳脂亚种	2.0*10 ¹¹
EP-GA65	<i>Enterococcus faecalis</i>	粪肠球菌	2.0*10 ¹¹
SF-GA12	<i>Enterococcus faecium</i>	屎肠球菌	2.0*10 ¹¹
PA-G73	<i>Pediococcus acidilactici</i>	乳酸片球菌	2.0*10 ¹¹
BS-GA28	<i>Bacillus subtilis</i>	枯草芽孢杆菌	1.0*10 ¹²
BL-GA26	<i>Bacillus licheniformis</i>	地衣芽孢杆菌	5.0*10 ¹¹
BC-G44	<i>Bacillus coagulans</i>	凝结芽孢杆菌	1.0*10 ¹⁰
SC-G09	<i>Saccharomyces cerevisiae</i>	酿酒酵母	2.0*10 ⁹

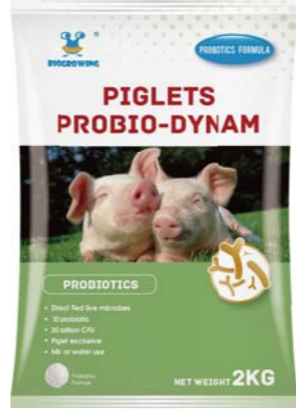
Remarks:

1. Strains characters are genetic identified.
2. Types of probiotic blends/premix could be provided based on client's requirement.
3. For professional use only, not intended to consumers.



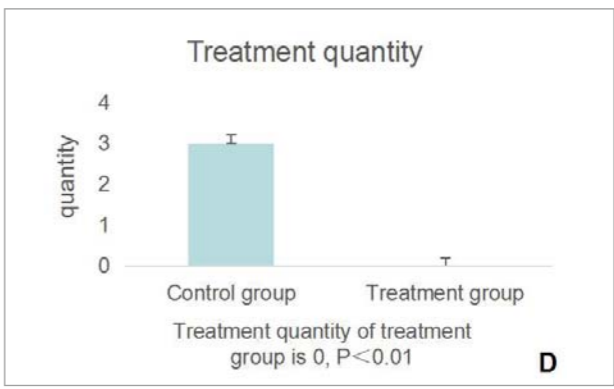
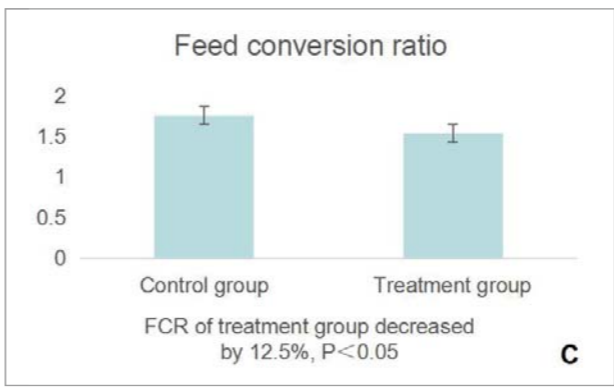
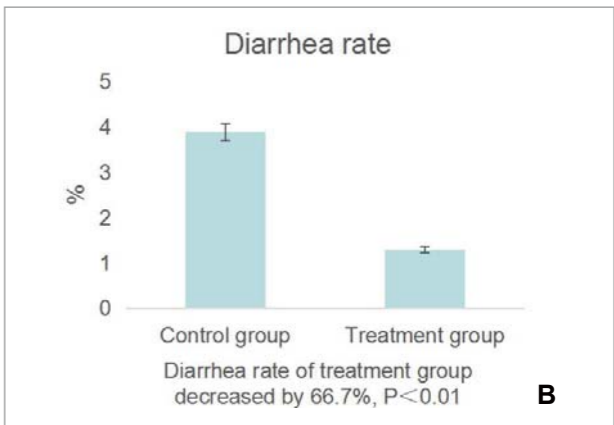
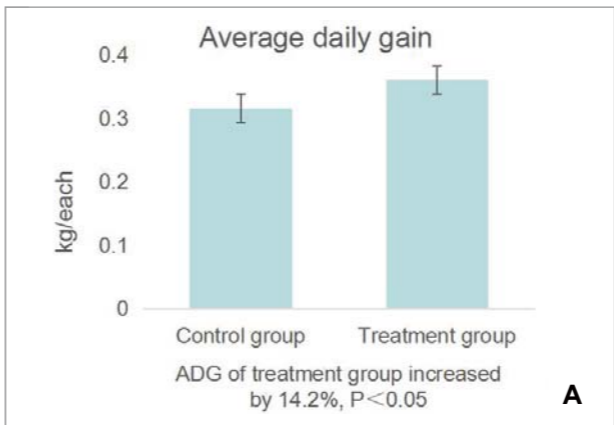
Piglets Probio-Dynam

Piglets Probio-Dynam



Ingredients	<i>Lactobacillus plantarum</i> , <i>Lactobacillus casei</i> , <i>Bifidobacterium animalis</i> , <i>B. lactis</i> , <i>Enterococcus faecium</i> , <i>Enterococcus faecalis</i> , <i>Clostridium butyricum</i> , <i>Staphylococcus Lactococcus</i> , <i>Bacillus coagulans</i> , <i>Bacillus subtilis</i> , <i>Bacillus licheniformis</i> , and carriers
Specification	Total live probiotic bacteria $\geq 3 \times 10^{10}$ CFU/g at the time of manufacturing
Properties	<ol style="list-style-type: none"> 1. A mix of aerobic, anaerobic and facultative anaerobic lactic acid bacteria and Bacillus. It works at different section of piglet's digestive system and boosts the piglet's growth. 2. Highly active Lactic Acid Bacteria can quickly colonize the piglet's gastro-intestinal tract, act as the lactic acid producing factory, regulate the metabolism, include digestive balance, enhance nutrient absorption, and induce essential enzyme and vitamin production. 3. Specially selected Bacillus spp. ensures the availability of essential enzymes and enables the Lactic Acid Bacteria to colonize the piglet's gastro-intestinal tract, effectively reducing diarrhea incidence.
Benefits	<ol style="list-style-type: none"> 1. Establishes healthy and balanced gut flora quickly, prevents all kinds of diarrhea, and significantly reduces diarrhea rate. 2. Improves the absorption of nutrition, increases daily gain and feed conversion rate. 3. Enhances immunity of piglet in the growth phase, reduces the risk of diseases, and saves potential cost in the disease remedies.
Recommended dosage	200-300 g/t in piglets'compound feed or a concentration of 0.02%-0.03% in drinking water.
Packaging	500 g/aluminum bag ; 2 kg/aluminum bag.
Storage	<p>In a cool and dry place</p> <p>Avoid sunlight</p> <p>Within a tightly closed package</p> <p>Avoid contact with toxic and harmful substances</p>

Animal Experimental Data





Sow Probio-Guard

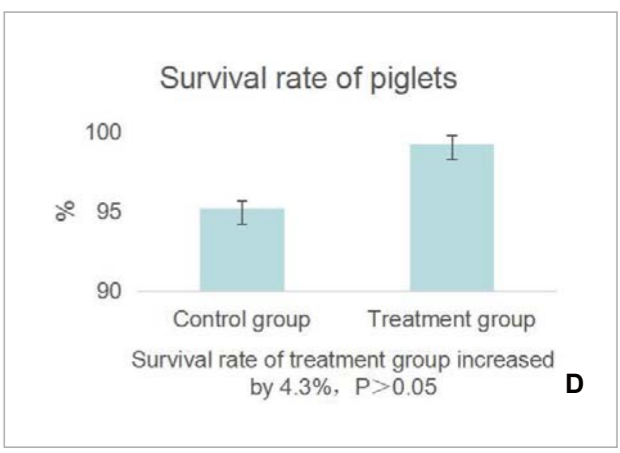
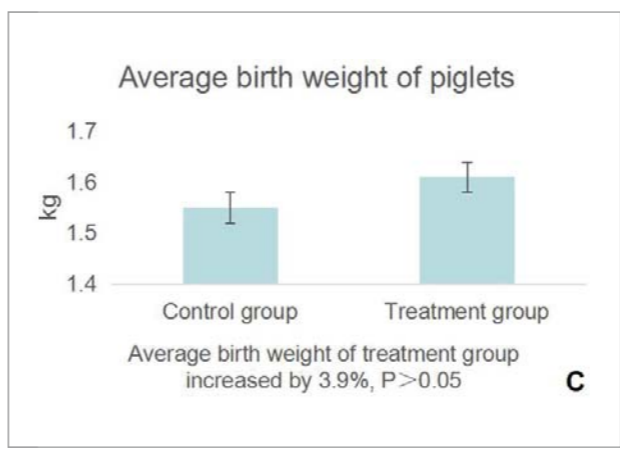
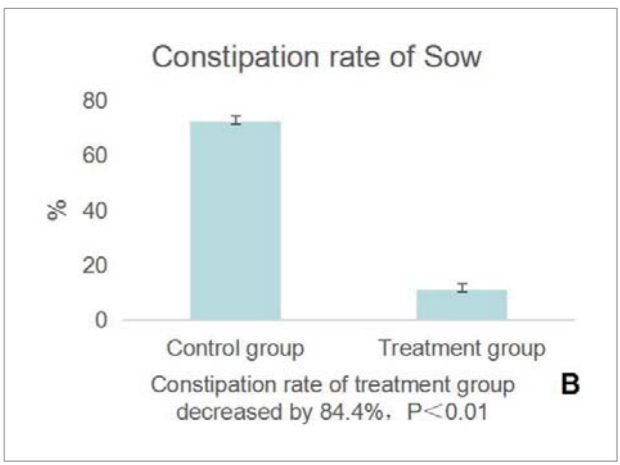
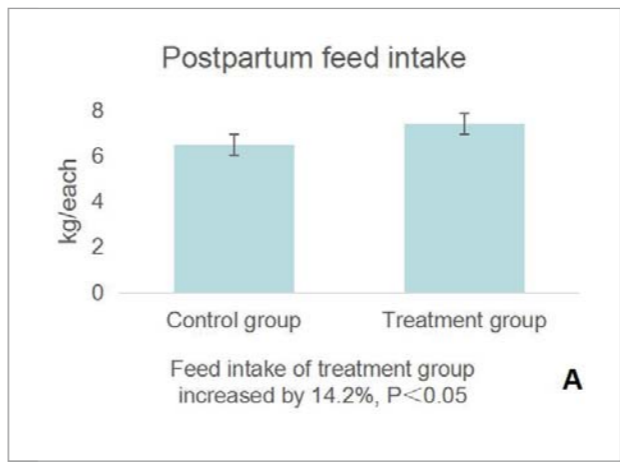


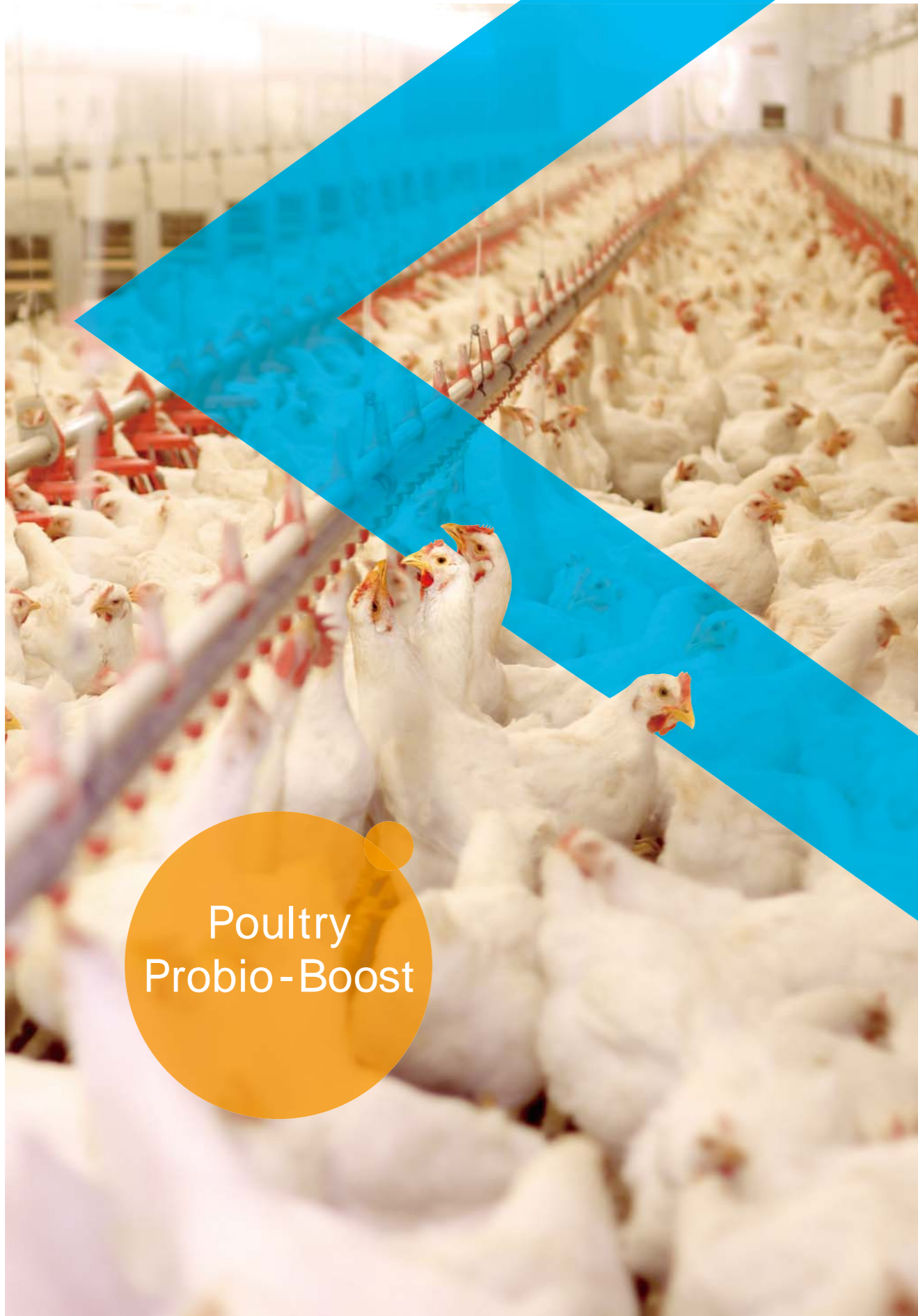
Ingredients	<i>Bacillus coagulans</i> , <i>Bacillus subtilis</i> , <i>Bacillus licheniformis</i> , <i>Enterococcus faecium</i> , <i>Enterococcus faecalis</i> , <i>Clostridium butyricum</i> , <i>Lactobacillus casei</i> , and carriers
Specification	Total live probiotic bacteria $\geq 2 \times 10^{10}$ CFU/g at the time of manufacturing
Properties	<ol style="list-style-type: none"> 1. A mix of a variety of aerobic, anaerobic and facultative anaerobic lactic acid bacteria and bacillus. It can act on all parts of the gastrointestinal tract of sows and improve the immunity of digestive tract. 2. The mix of Enterpoccus spp. and Bacillus spp. in a right ratio, induces essential enzyme production and improves the absorption of nutrition. 3. Specially-selected <i>Bacillus coagulans</i> and <i>Clostridium butyricum</i> contribute to diarrhea relief and colitis prevention.
Benefits	<ol style="list-style-type: none"> 1. Helps establish healthy and balanced gut flora quickly, reduces diarrhea rate and prevents colitis. 2. Improves the absorption of nutrition, increases daily gain and feed conversion rate. 3. Improves sow's farrowing quality.
Recommended dosage	150-200 g/t in sow compound feed or a concentration of 0.015%-0.02% in drinking water.
Packaging	500 g/aluminum bag; 2 kg/aluminum bag.
Storage	<p>In a cool and dry place</p> <p>Avoid sunlight</p> <p>Within a tightly closed package</p> <p>Avoid contact with toxic and harmful substances</p>



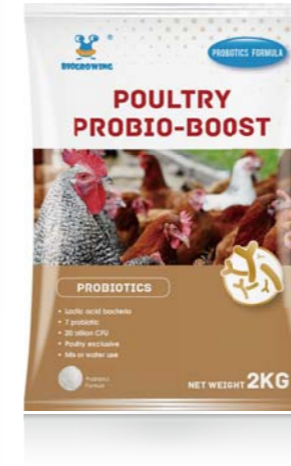
Sow Probio-Dynam

Animal Experimental Data



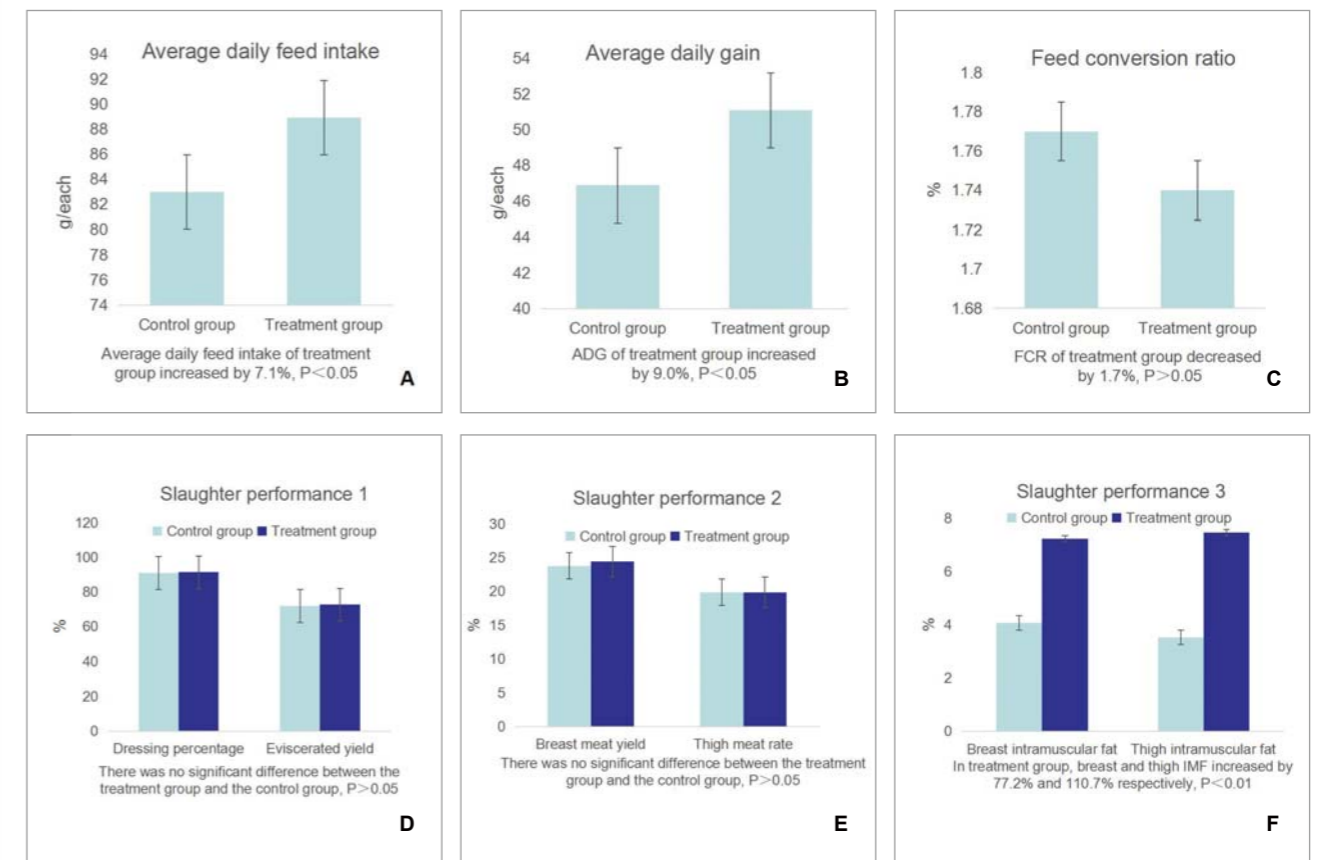


Poultry Probio-Boost



Ingredients	<i>Lactobacillus plantarum</i> , <i>Lactobacillus acidophilus</i> , <i>Lactobacillus casei</i> , <i>Bacillus coagulans</i> , <i>Bacillus subtilis</i> , <i>Bacillus licheniformis</i> , <i>Enterococcus faecium</i> , and carriers
Specification	Total live probiotic bacteria $\geq 2 \times 10^{10}$ CFU/g at the time of manufacturing
Properties	<ol style="list-style-type: none"> 1. As the digestive tract of the poultry is short, the synergistic effect of <i>Lactobacillus</i> and <i>Bacillus</i> can be achieved quickly 2. A mix of many native intestinal lactic acid bacteria quickly colonizes the gut and maintains the balance of the gastro-intestinal flora 3. <i>Bacillus coagulans</i> helps to prevent diarrhea and promote digestion and absorption
Benefits	<ol style="list-style-type: none"> 1. Improves the immunity of poultry, especially young poultry, reduce the mortality rate, and improves the overall economic outcomes 2. Helps increase daily gain and feed conversion rate of poultry, reduces ratio of feed to meat, and saves feeding costs 3. Can improve meat quality, slaughter rate, and breast meat quality; especially increases the intermuscular fat of breast and leg muscle
Recommended dosage	200-250 g/t in chicks and broilers' compound feed or a concentration of 0.02%-0.025% in drinking water; 150-200 g/t in layers' compound feed or a concentration of 0.015%-0.02% in drinking water.
Packaging	500 g/aluminum bag, 2 kg/aluminum bag.
Storage	In a cool and dry place Avoid sunlight Within a tightly closed package Avoid contact with toxic and harmful substances

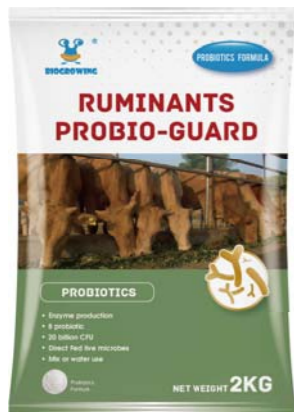
Animal Test





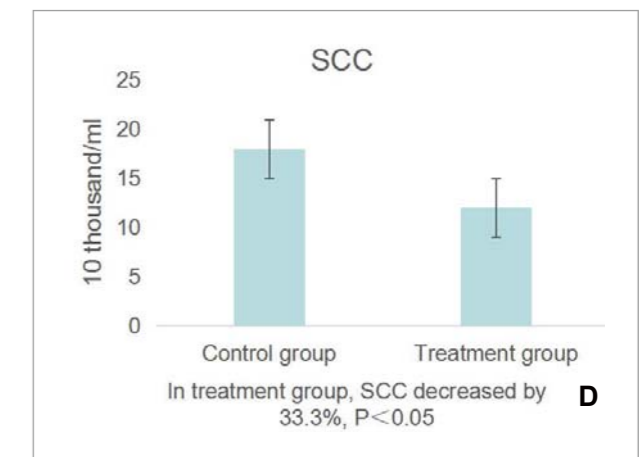
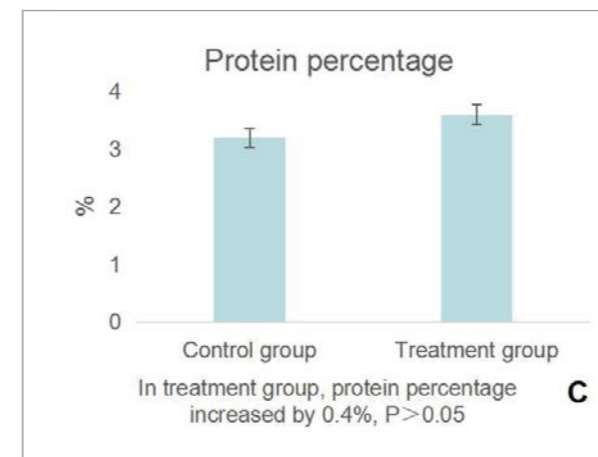
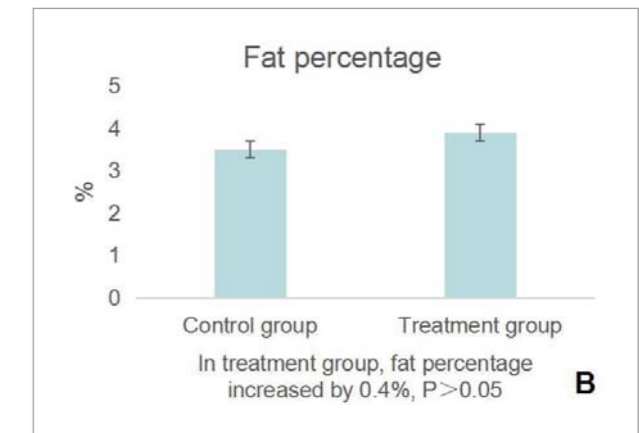
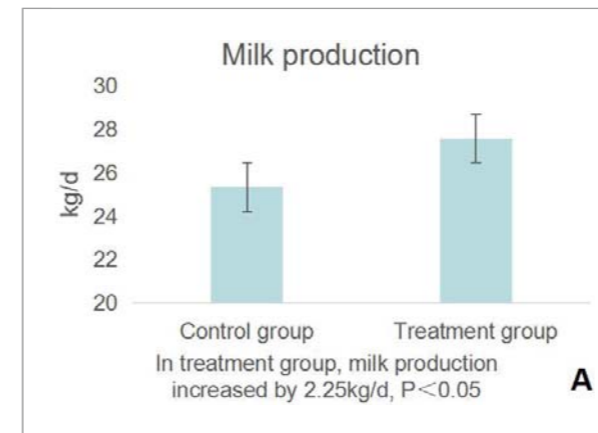
Ruminants Probio-Guard

Ruminants Probio-Guard

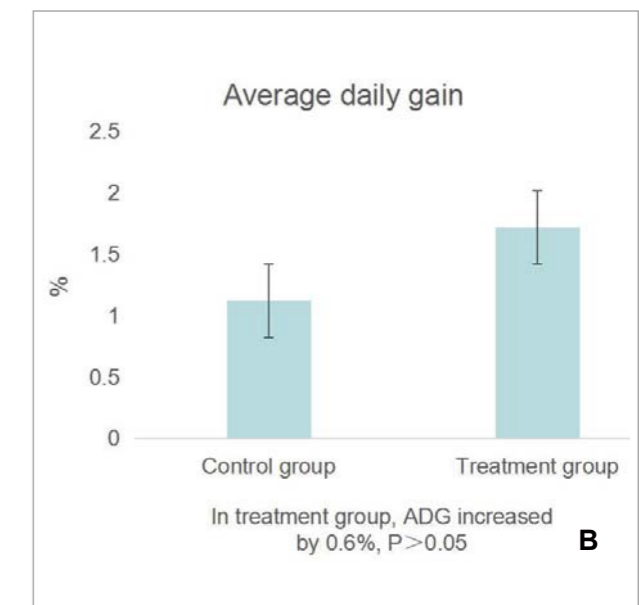
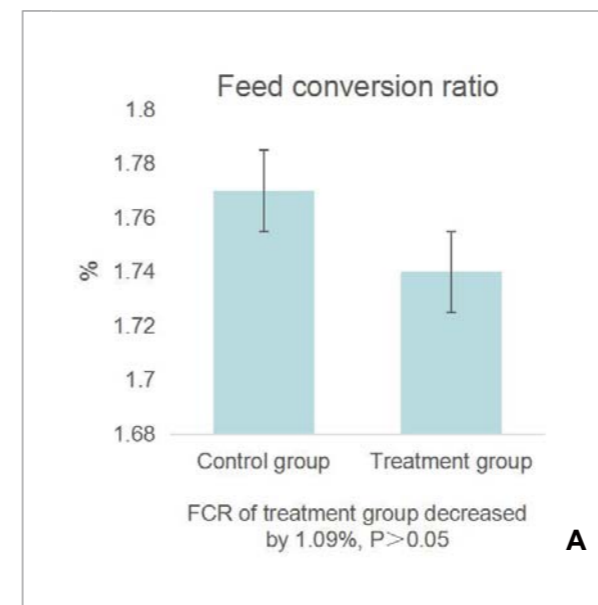


Ingredients	<i>Saccharomyces cerevisiae</i> , <i>Clostridium butyrate</i> , <i>Lactobacillus buchneri</i> , <i>Lactobacillus plantarum</i> , <i>Lactobacillus fermentum</i> , <i>Staphylococcus Lactococcus</i> , <i>Bacillus subtilis</i> , <i>Bacillus licheniformis</i> , and carriers
Specification	Total live probiotic bacteria $\geq 2 \times 10^{10}$ CFU/g at the time of manufacturing
Properties	<ol style="list-style-type: none"> 1. A mix of aerobic and facultative anaerobic bacteria is very effective at working in each section of ruminant's digestive system. 2. In the ruminant rumen, increased numbers of <i>Saccharomyces cerevisiae</i> and <i>Bacillus</i> spp. induce essential enzymes synthesis, and in turn promote digestion of forage and production of yeast proteins 3. Lactic Acid Bacteria can regulate intestinal health and promote digestion and absorption
Benefits	<ol style="list-style-type: none"> 1. Promotes the ruminal and intestinal health of beef cattle, and increases feed conversion rate 2. Increases milk yield, milk fat rate, and milk protein rate 3. Reduces the number of somatic cells in milk, and improves the quality of milk 4. Reduces ratio of feed to meat, and brings downs feeding cost
Recommended dosage	150-250 g/t in beef cattles' concentrated feed; 150-200 g/t in diary cattles' concentrated feed.
Packaging	500 g/aluminum bag, 2 kg/aluminum bag.
Storage	<p>In a cool and dry place</p> <p>Avoid sunlight</p> <p>Within a tightly closed package</p> <p>Avoid contact with toxic and harmful substances</p>

Animal Test-Cow



Animal Test-Beef cattle





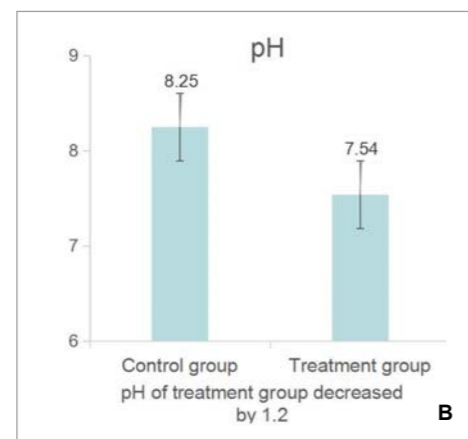
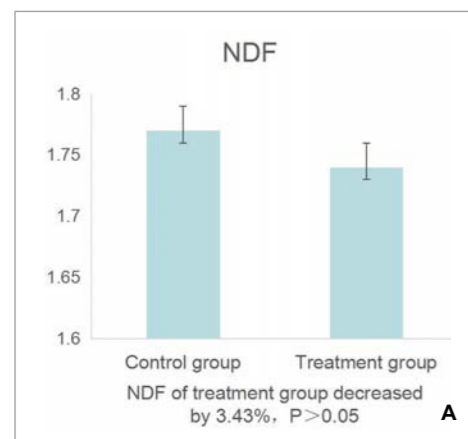
Silage Ferment-Plus

Silage Ferment-Plus



Ingredients	<i>Lactobacillus casei</i> , <i>Lactobacillus plantarum</i> , <i>Staphylococcus Lactococcus</i> , <i>Cellulase</i> , <i>Phytase</i> , and carriers
Specification	Total live probiotic bacteria $\geq 2 \times 10^{10}$ CFU/g at the time of manufacturing Total enzymes ≥ 1000 IU/g at the time of manufacturing
Properties	1. Composed of highly active lactobacillus bacteria and compound enzyme preparation, it allows the feed to be stored at room temperature and maintain a high fermentation activity 2. Lactic acid produced by the lactobacillus bacteria, effectively inhibits the growth of mold and other harmful bacteria, provides fermented feed a unique sour flavor, and improves palatability
Benefits	1. It quickly establishes acidity, thus maintaining the nutritional components of feed and allows the feed to be stored for a long-term 2. Lactic acid bacteria decomposes crude fiber and other substances in silage to produce a large number of amino acids, vitamins, and bacterial proteins that improve the utilization rate of feed and its nutritional value 3. The feed after silage is sour and palatable
Recommended dosage	100-150 g/t for silage fermented.
Packaging	500 g/aluminum bag, 2 kg/aluminum bag.
Storage	In a cool and dry place Avoid sunlight Within a tightly closed package Avoid contact with toxic and harmful substances

Animal Test



The NDF content and pH level of silage fermented with the starter were lower than those of the non-starter group. In addition, the silage fermented with the starter group was yellow-green and sour-scented, and the silage without the starter group was yellow-brown and sour-scented



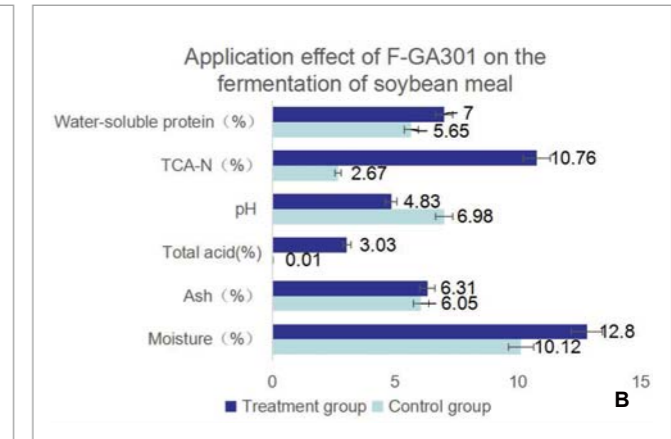
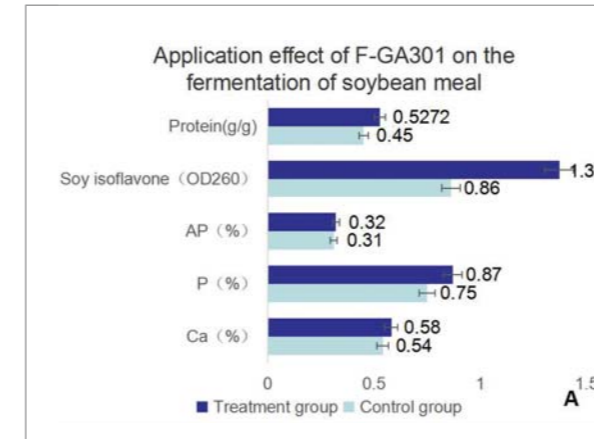
Feed Ferment-Optimiz

Feed Ferment-Optimiz



Ingredients	<i>Lactobacillus plantarum</i> , <i>Lactobacillus casei</i> , <i>Lactobacillus fermentum</i> , <i>Enterococcus faecium</i> , <i>Enterococcus faecalis</i> , <i>Saccharomyces cerevisiae</i> , and carriers
Specification	Total live probiotic bacteria $\geq 2 \times 10^{10}$ CFU/g at the time of manufacturing
Properties	1. The product can not only produce sour and fragrant fermented feed, but also some species of lactic acid bacteria present in it can absorb and degrade mycotoxin from the feed's raw material and inhibit the growth of mold 2. The product is composed of a variety of fast-growing lactic acid bacteria and yeast, which can quickly acidify feed, prevent the growth of miscellaneous bacteria, and ensure the safety of feed
Benefits	1. Soybean meal is sour and fragrant after fermentation, which makes it palatable and improves feed intake 2. After fermentation, protein, soluble nitrogen and soybean isoflavone content in soybean meal increased and the content of anti-nutritional components in the soybean meal decreased significantly 3. The amount of total acid and mineral contents, such as available phosphorus and calcium, were all increased, and nutritive value of feed increased
Recommended dosage	100-150 g/t for soymeal or other feed fermented.
Packaging	500 g/aluminum bag, 2 kg/aluminum bag.
Storage	In a cool and dry place Avoid sunlight Within a tightly closed package Avoid contact with toxic and harmful substances

Animal Test



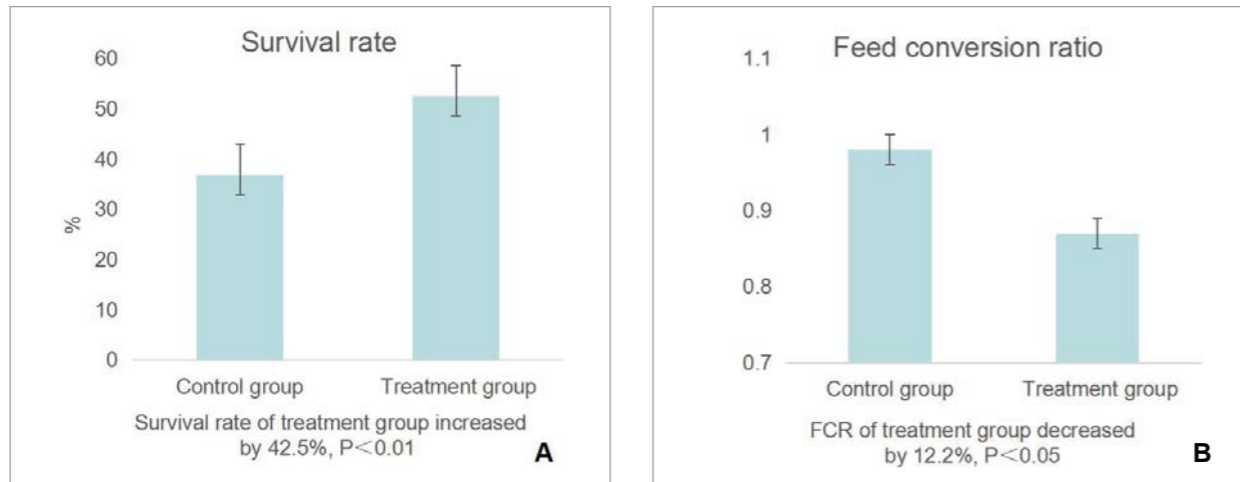
Aqua Probio-Defender



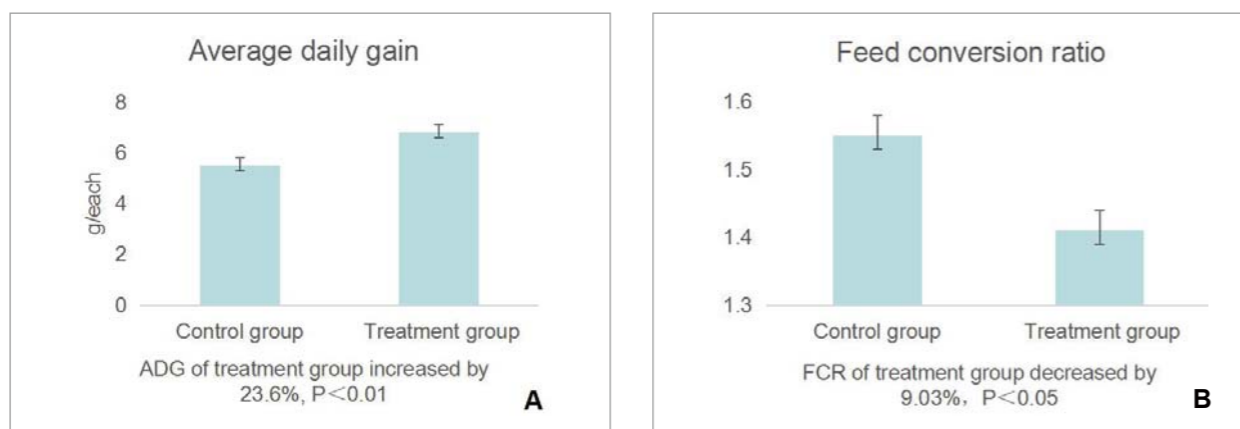
Ingredients	<i>Bacillus subtilis</i> , <i>Bacillus licheniformis</i> , <i>Bacillus coagulans</i> , <i>Lactobacillus plantarum</i> , <i>Lactobacillus casei</i> , <i>Enterococcus faecium</i> , <i>Saccharomyces cerevisiae</i> , and carriers
Specification	Total live probiotic bacteria $\geq 1 \times 10^{10}$ CFU/g at the time of manufacturing
Properties	1. A mix of aerobic and facultative anaerobic bacteria plays synergetic role 2. Strains in this product have strong colonization ability and rapid propagation, and they produce rich organic acids and antimicrobial peptides 3. Yeasts provide abundant bacterial proteins for aquatic animals
Benefits	1. Enhances the immunity of aquatic animals, reduces the risk of diseases, and significantly improves the survival rate 2. Effectively prevents various bacterial and viral infectious diseases 3. Improves daily bait and daily gain, promotes growth, and reduces feed coefficient 4. Improves the environment of aquaculture water; reduces the content of ammonia, nitrogen, and nitrite in water; and prevents eutrophication of water body
Recommended dosage	400-500 g/t in aqua's compound feed.
Packaging	500 g/aluminum bag, 2 kg/aluminum bag.
Storage	In a cool and dry place Avoid sunlight Within a tightly closed package Avoid contact with toxic and harmful substances

Test Result

The effect of aquatic probiotics on the culture of *Penaeus vannamei* (Qingpu, Shanghai)



The effect of aquatic probiotics on breeding bream (Changzhou, Jiangsu)

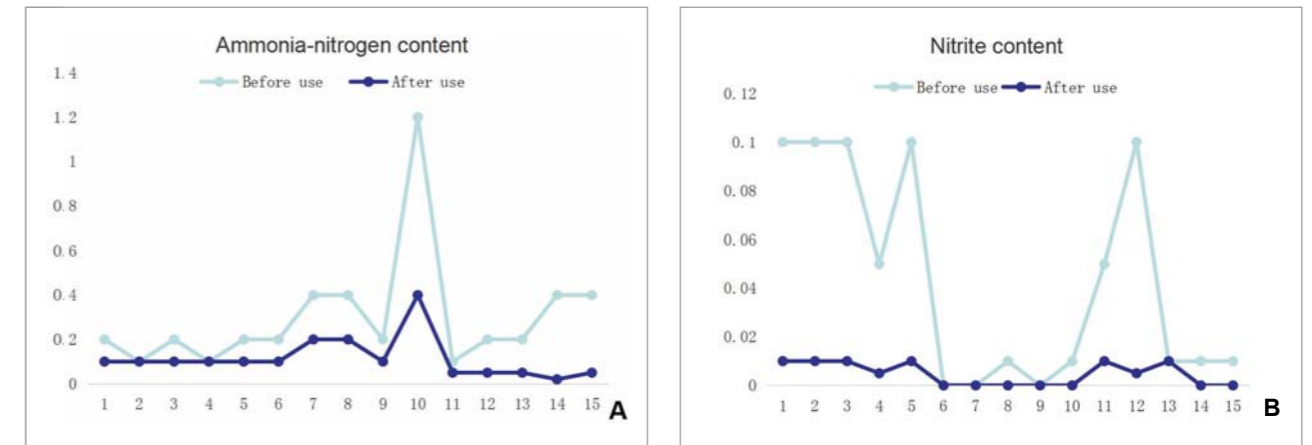


Aqua Probio-Cleanse



Ingredients	<i>Bacillus subtilis</i> , <i>Bacillus licheniformis</i> , <i>Lactobacillus casei</i> , <i>Enterococcus faecalis</i> , <i>Saccharomyces cerevisiae</i> , and carriers
Specification	Total live probiotic bacteria $\geq 2 \times 10^{10}$ CFU/g at the time of manufacturing
Properties	1. A mix of aerobic and facultative anaerobic probiotics, which can grow in all layers of water and play a comprehensive role in water quality regulation 2. All kinds of bacteria in the product grow rapidly and can quickly decompose and utilize the bait, feces, and other nutrients in the water body to purify the water quality
Benefits	1. Quickly purifies eutrophic water body, controls aquaculture water body, removes odor from blackened and odorous water body, and improves its water quality 2. Promotes the growth of beneficial algae and prokaryotes in water, and increases the abundance of bait for aquatic animals 3. Reduces ammonia nitrogen and nitrite content in water
Recommended dosage	Aquaculture sewage: 600 g-1.8 kg/acre*m; sanitary sewage or others: 3 kg/acre*m.
Packaging	500 g/aluminum bag, 2 kg/aluminum bag.
Storage	In a cool and dry place Avoid sunlight Within a tightly closed package Avoid contact with toxic and harmful substances

Test Result



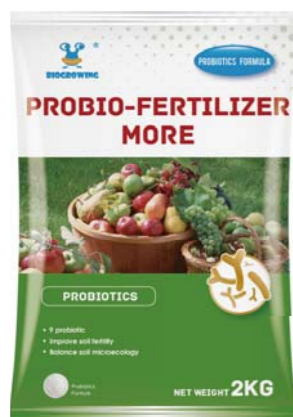
- Before and after use of probiotics (as shown in left) and its nitrite and ammonium changes (as shown in above), twice use, 25 days of testing
- Before and after use of probiotics (as shown in below), dead algae oil film was reduced significantly, twice use, 20 days of testing.





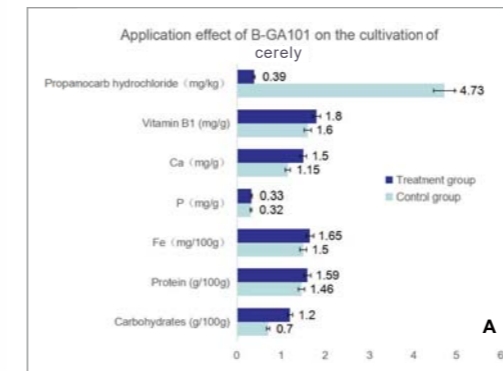
Probio-Fertilizer more

Probio-Fertilizer more



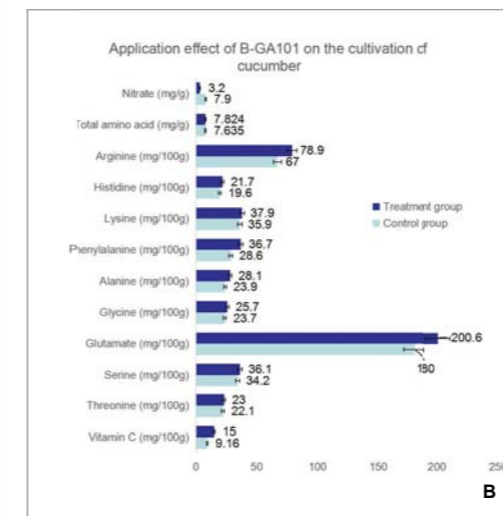
Ingredients	<i>Lactobacillus plantarum</i> , <i>Enterococcus faecium</i> , <i>Enterococcus faecalis</i> , <i>Bacillus subtilis</i> , <i>Bacillus licheniformis</i> , <i>Bacillus cereus</i> , <i>Bacillus amyloliquefaciens</i> , <i>Trichoderma viride</i> , <i>Phytase</i> , and carriers
Specification	Total live probiotic bacteria $\geq 2 \times 10^{10}$ CFU/g at the time of manufacturing
Properties	<ol style="list-style-type: none"> 1. Combination of various bacteria, conducive to the formation of a symbiotic earth-bacteria system; useful and convenient for the plant growth and disease prevention. 2. Convenient usage: can be used as bio-fertilizers or can be used in combination with the other organic fertilizers; can be dissolved in water or just sprayed as powder.
Benefits	<ol style="list-style-type: none"> 1. To construct and maintain normal soil microbial system, enhances soil softness and permeability, and prevents soil compaction 2. Promotes the decomposition of organic matter in soil, degrades soil toxins, reduces the use of chemical fertilizer, and solves the problem of continuous cropping 3. Promotes crop growth, increases production, and extends harvesting 4. Reduces the content of nitrite in fruits and vegetables, increase the content of amino acids and vitamins, and improve the quality of fruits and vegetables
Recommended dosage	Spread: Evenly mixed with soil, with soil content 20 times that of the powder, and then spread and turn up the soil. 6-12 kg/acre Spraying: Dilute 1000 times with water, 6 kg/acre/time As an organic fertilizer additive: 1-1.5 kg/t in organic fertilizer.
Packaging	500 g/bag; 2 kg/bag.
Storage	In a cool, closed, and dry place Avoid direct sunlight Avoid contact with toxic and harmful substances

Test Results



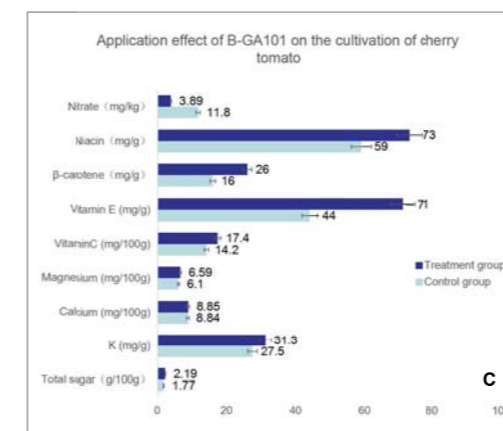
Improvement of nutrients in celery after using probiotic

Test items (parsley)	Increased rate (%)
Carbohydrates (g/100g)	71.4
Protein (g/100g)	46.1
P (mg/100g)	3.1
Fe (mg/g)	10
Ca (mg/g)	30
Vitamin B1 (mg/g)	12.5
Propionocarb hydrochloride (mg/kg)	-91.8



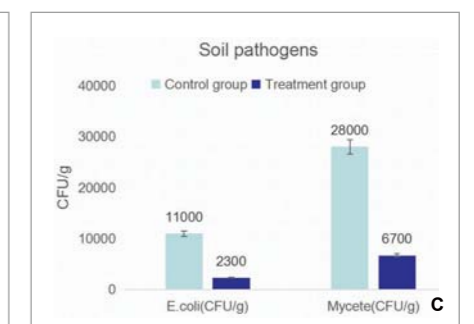
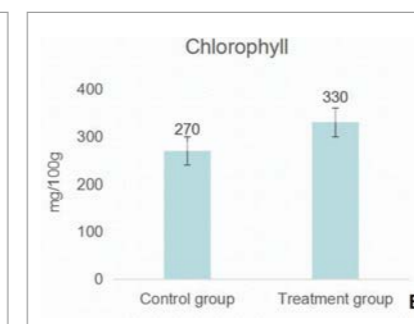
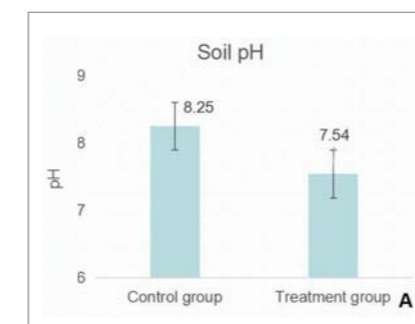
Improvement of nutrients in cucumber after using probiotic

Test items (cucumber)	Increased rate (%)
Vitamin C (mg/100g)	63.76
Aspartic acid (mg/100g)	6.97
Threonine (mg/100g)	4.07
Serine (mg/100g)	5.56
Glutamate (mg/100g)	22.56
Glycine (mg/100g)	8.44
Alanine (mg/100g)	17.57
Phenylalanine (mg/100g)	28.32
Lysine (mg/100g)	5.57
Histidine (mg/100g)	10.71
Arginine (mg/100g)	17.76
Total amino acid (mg/g)	2.48
Nitrate (mg/g)	-59.49



Improvement of nutrients in Small tomato after using probiotic

Test items (cherry tomato)	Increased rate (%)
Total sugar (g/100g)	23.8
K (mg/g)	14.1
Calcium (mg/100g)	0.1
Magnesium (mg/100g)	8.0
Vitamin C (mg/100g)	22.4
Vitamin E (mg/g)	62.0
β -carotene (mg/g)	60.0
Niacin (mg/g)	22.9
Nitrate (mg/kg)	-67.0



The soil pathogenic microorganisms were significantly reduced in the cherry tree using probiotics, and the soil pH and cherry chlorophyll levels were also significantly improved.

