



MASTER PLAN FOR THE WHOLE FERTILIZER PROCESSING SYSTEM

Water content 20-40% Broiler manure Treat to
POWDER ORGANIC FERTILIZER
(formulation process)



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OVERSEASDIVISION**
Introduction

Background

Vietnam is the main agriculture products exporting country in the world, the consumption of organic fertilizer has been increasing in recent years, and the main importing country is Japan, European country, and China, and the Bio fertilizer has been the highest price among all the imported product. After out breaking of covid-19 pandemic , with unstable US dollar rate and increasing sea shipping cost, the imported organic fertilizer price keeps raising, which calls for Vietnam local animal farm or professional fertilizer producer to local compost the animal dung and waste into organic fertilize.

Current problems for composting fertilizer in Vietnam

There were Vietnam big agriculture corporations installed sealed tank fertilizer fermentation projects few years ago, the facility imported from Japan, since the facility designed for giant animal dung with integrated animal farms, while the facility designed for the developed country environmental law of emission control standards. After operation, the buyers found the operation cost is high, hard to cover the cost, the projects has been abandoned now.

While in Vietnam there are small organic fertilizer producer to local produce with small investment facility, but can not meet the major organic fertilizer trader requirement.

Expecting organic fertilizer quality or standards by the main Vietnam fertilizer buyers

In Vietnam market the most trader of commercial organic fertilizer requires the standard products, but the highest commercial value products are compound fertilizer with the recipe with humic acid, amino acid etc. And dosage of microbes , the products as Bio fertilizer is the highest value:

Product form	OM content	N	P	k	Moisture	Humic acid content	Other additives	Purchase price by trader
powder	50%	3	2	2	20%			
The formulation of compound fertilizer all should be done in the stage of powder from processing, and then the compound powder goes to next stage of granulation								

Target customer in Vietnam

Whole plans are designed by HEBI RENYUAN BIO TECH CO.LTD. for the producing to High Nitrogen Organic Fertilizer (we call PREMIUM ORGANIC FERTILIZER). It can made from 40% -50% water content of Broiler or Layer manure which come out from fine condition of cage system. And all devices are chosen by trust able quality and successful result.

Following subjects are explain each facility and how they work until forwarding. We all hope that this technology can contribute to Vietnamese livestock farmer and cultivator and supplying safe eating habits to the citizen.

Facing current Vietnam animal dung composting problems, we special design the production scheme with lowest cost, and simple formulation, to cut down the organic fertilizer production cost, make it feasible for private fertilizer producer.

Business model

1. Organic fertilizer trader/ buyer provide all legalization and documents for fertilizer production; And would be the fertilizer buyers of the finish products under contract;
2. Private organic fertilizer producer or livestock, animal farmers prepare the land, and buy the equipment, produce the organic fertilizer;

Basic condition for private farm and private organic fertilizer producer

Land: 3000 m²

Facility: 1 set of RY facility / per 10 ton of raw chicken dung needs 1 kg of RY EM composter

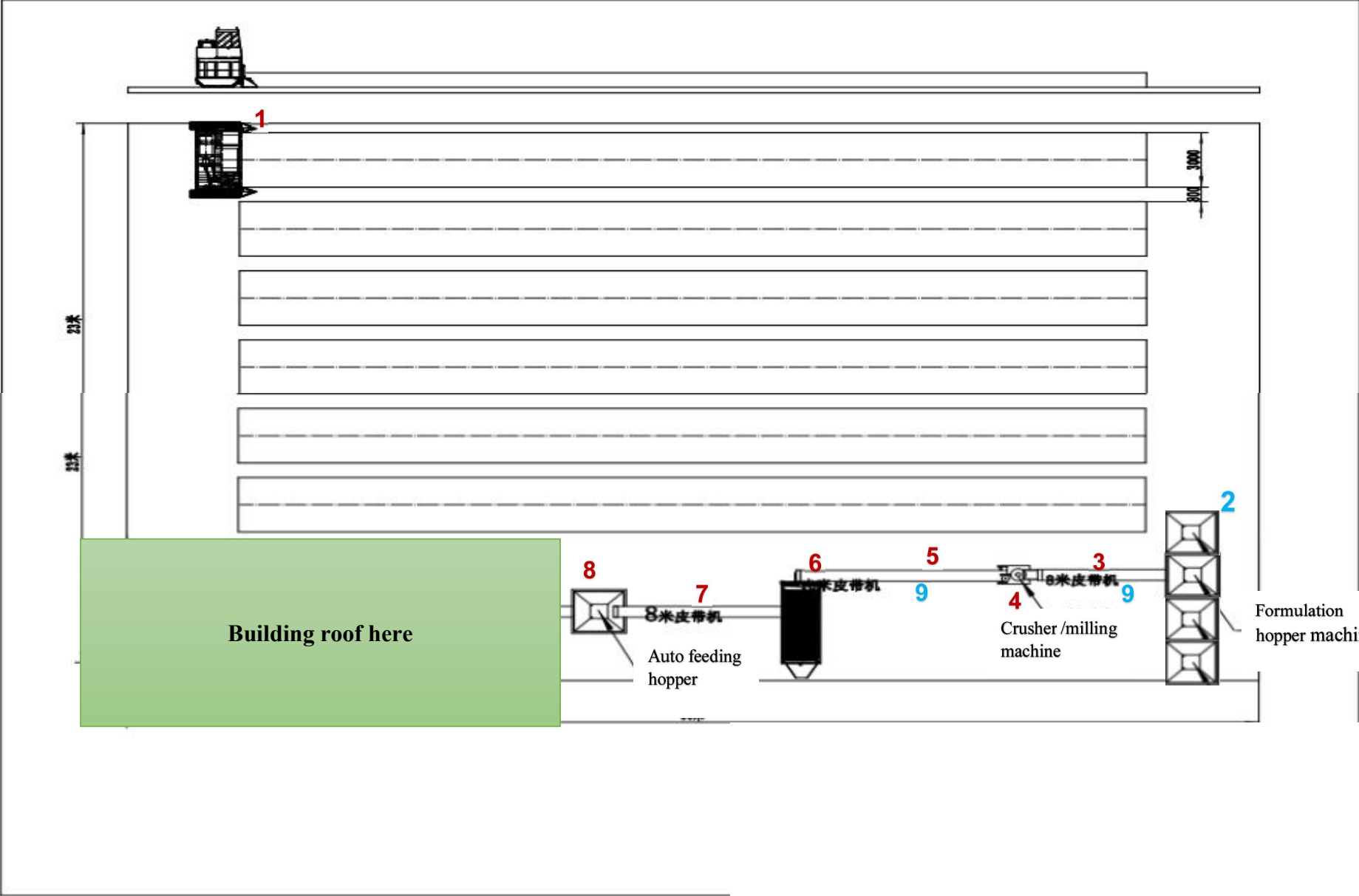
Chicken manure: source price / Pig manure: source price

Dry matter (dry grass, hay) : if needed

Productivity: 3500 MT raw chicken manure per year, need labors 2 persons

Finish product: 2340 MT powder form of organic fertilizer (no package, sell as bulk)

Production ground power supply: 100 KW , 3 phase power



No.2 The formulation hopper machine in RY fertilizer factory
Installed under ground



No.2 The formulation hopper machine

Installed on ground



Installed under ground



No.2 The formulation hopper machine

RY multi hopper formulation hopper machine

The high reliable frequency conversion speed regulation technology of automatic **formulation hopper machine** has wide belt, thick material layer and low-speed operation, so it has stable operation and near static measurement accuracy.

Purpose and scope of application:

The machine is used to dynamic automatic formulation hopper machine is used for the production and use of compound fertilizer and trace element fertilizer in the whole set of organic fertilizer production line, which has the function of transportation and measurement.

Features of automatic formulation hopper machine:

1. The high reliable frequency conversion speed regulation technology of automatic **formulation hopper machine** has wide belt, thick material layer and low-speed operation, so it has stable operation and near static measurement accuracy. The dynamic measurement accuracy is better than 1.0%; The static measurement accuracy is better than 0.5%, and the precision can reach 0.125%.
2. The performance price ratio of automatic **formulation hopper machine** is good. With the adoption of new technology and continuous improvement combined with years of practice, it has realized the automatic belt centering, automatic tension adjustment, profiling cleaner, dust-proof design of roll bearing, etc. High control precision and good stability.
3. The total hopper is designed as per customer`s production formulation, and can be customized as per customer`s requirement;
4. The price of the machine calculated as per single hopper, and total hoppers is the final price of the machine.



No.3 Microbes feeding hopper machine

RY microbes agent spiral feeder machine

The functional microbes feeder machine is used to evenly mix the required functional microbes batch into the extruded organic fertilizer substrate in proportion, so a production line can easily produce bio fertilizer products of different specification which relating to the different microbes dosage .

The shifting of different microbes. If change the microbes for production purpose is rapid and convenient, which can improve labor productivity and reduce the scrap rate.

1. Purpose and scope of application:

The machine is used to evenly mix the required microbes batch into the fertilizer (powder & granular form) substrate in proportion, therefore a production line can easily produce bio fertilizer products with various functional microbes dosage.

Realize non-stop of microbes shifting. The change of functional microbes is rapid and convenient, which can improve labor productivity and reduce the scrap rate.

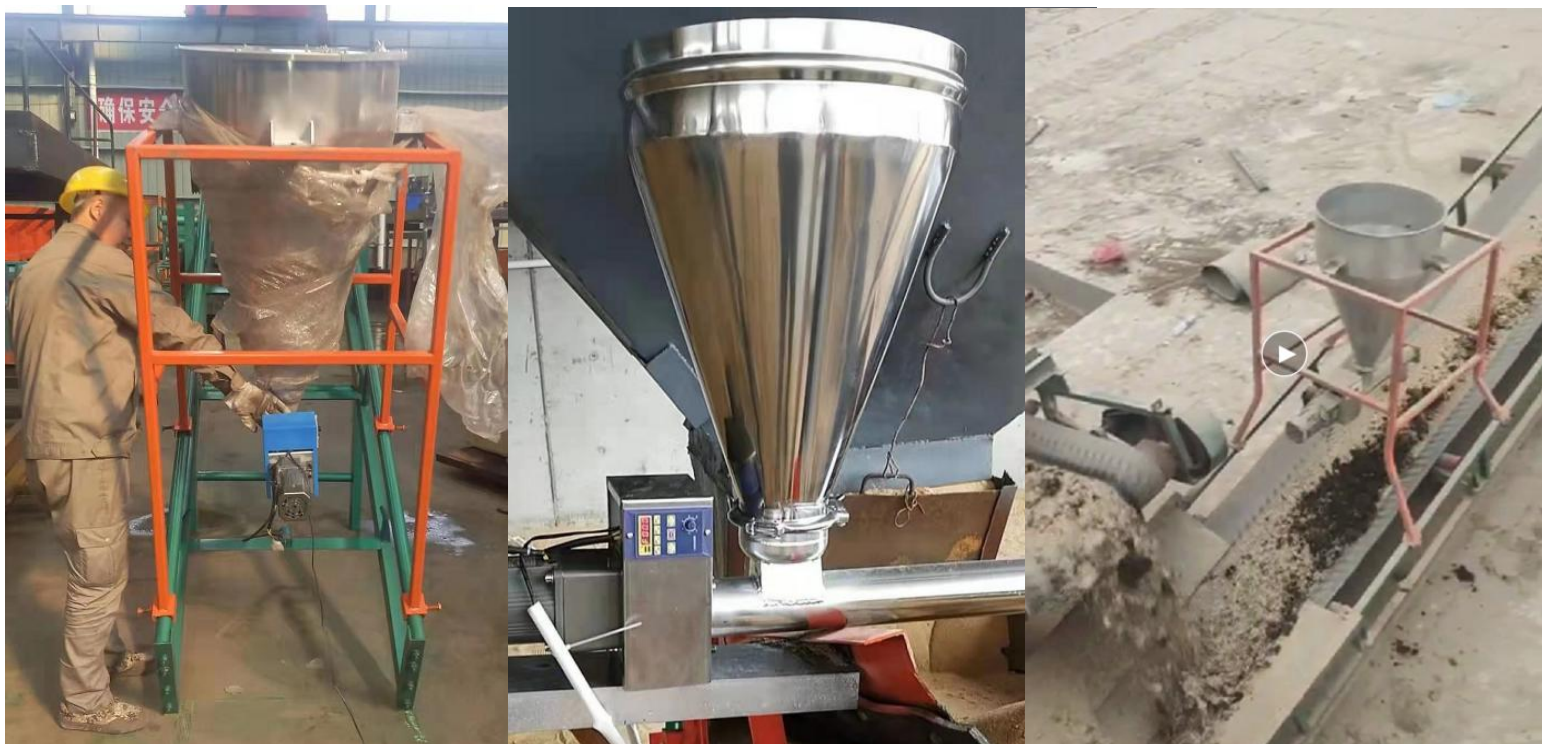
2.Main basic parameters:



Hopper capacity: customized according to requirements

Conveying capacity of mixer: 0-100kg / hour adjustable

Mixing screw speed: adjustable

The machine is suitable for dosage , or feeding material of powder, fiber and flask materials with poor fluidity. All parts contacting with feeding materials are made of stainless steel. The feeder is easy to clean and replace parts. Horizontal stirring is equipped to improve the flow of materials to the screw propulsion part. For materials with poor fluidity and easy to bridge stacking, vertical mixing will be configured.



No.	Item	Specification	QTY	Price(USD)		Picture
				Unit	Total	
1	1 set automatic formulation hopper machine with 4hoppers	<p>1.Power: 4 X 2.2 KW</p> <p>2.Productivity: 10m³/ Hopper</p> <p>3.The highest weight: 2.5MT/Hopper</p> <p>4.Speed: Adjustable</p> <p>5.The machine weight:2300Kg</p> <p>4. Hopper number: 4</p>	1	Ex Work XXXXXX Hopper	Ex Work XXXXXX RMB For 4 hoppers	
2	Strain feeding hopper	<p>1.Model: RY-SHF</p> <p>2.Power:220v250w50/60hz</p> <p>3.The upper mouth diameter : 580 mm</p> <p>4.The height: 840mm</p> <p>5.The lower mouth : 75mm</p> <p>6. Hopper Volume: 0.084 M3</p> <p>7. The conveying capacity : 1-10 kg/hour</p> <p>8. Production capacity: 5 MT per hour the Maxium</p> <p>5.Dimensions for shipping: 1350mmX800mmX1250mm</p> <p>6. Net weight: 55 Kg</p>	1	Ex work USD XXXXXX	Ex Work USD XXXXXX	

Formulation of other key ingredients of the key commercial compound fertilizer in Vietnam market

Commercial product	Need adding ingredient	Dosage	The raw material ingredients price	Remarks
Need to adjust higher of OM content of the organic fertilizer, and adjust the final pH lower	Humid acid 80% OM contents(the grade)	Decide by the substrate of final organic fertilizer OM e ,in China normally 10-20% dosage	Price for ex work 520 RMB /MT	Checking the current given VN local chicken manure OM substrate, no need adjust the OM, only the pH need to adjust lower. P.K can not be adjust Only formulation of Humic acid, no need 2.9 machine.
Compound fertilizer with Chemical N. P.K	This would be Non organic +organic compound fertilizer, RY will help to design the formula, or recipe according to VN local market.			
Compound fertilizer with trace mineral	This is organic compound fertilizer, RY will help to design the formula, or recipe according to VN local market.			
Special tailored fertilizer for Customer`s order	Based on customer`s special formula, recipe, RY will help to design its formula, and recipe.			

Formulation with strain, finish product as **Bio Fertilizer**, which belonging to high value fertilizer category

The most expensive Bio fertilizer from VN importing records are Europe , Japan products.

Better requires the same product literature and specs from Omega and Alpha, most of them RY can provide competing

Formulation to replace. The most value of Bio fertilizer is it can replace many pesticide and chemical fertilizer which is must agriculture input for the exporting agriculture products producer.

The final products can be categorized as

A. Special fruit, vegetable fertilizer, like Dragon fruit special fertilizer, rice fertilizer , Durian special fertilizer



(Since both are Tropical fruit, RY no ready formulation, can be tailored according customers needs)



B. Also can be functional fertilizer like Roots strengthen, fruit bearing promoter

C. Based on current VN market most valuable bio fertilizer and category, that can propose the product recipe, RY will help to design the formula.

The Soil modification strain	Recommend dosage	Price Ex work price	Plant protection strain	Recommend dosage	Price Ex work price
Bio Functional organic microbes	1kg 20B in 1MT Organic fertilizer	USDXXX/ kG One pack of 25KG USD XXXX.00	Root Knot Namatode	1-2kg in 1MT organic fertilizer	
Bacillus Subtilis(B.S)	1kg in 1MT organic fertilizer	100B strength XXXX/kg 25 KG Package	Underground Pest control agent	2-3kg in 1MT organic fertilizer	
Bacillus licheniformis(B.L)	1kg in 1MT organic fertilizer	100B strength RMB XXXX/kg 25 KG Package	Anti Re-cropping agent	25 Kg in 1MT of organic fertilizer	USDXXXX/ kG One pack (20KG) USD 130.00
Bacillus Mucilaginosus (B.M)	10B strength 2kg/ MT organic fertilizer	10B Strength RMB XXXX/kg 25KG package	Paecilomyces Lilacinus	2-3kg in 1MT organic fertilizer	
Bacillus Megaterium(B.M)	20B strength 1Kg/ MT organic fertilizer	20B Strength RMB XXXX/KG 25KG package	Trichoderma Harzianum	1-2kg in 1MT organic fertilizer 1kg package	USDXXXXX/ kG One pack (20KG) USD 130.00
			Metarhizium anisopliae		

The final sales price of bio fertilizer, decide on current same category from Japan, or Europe, and the competition situation of VN market. Reference of the bio fertilizer from RY self own product line, which designed for the local market (Northern China corps)

Final products	Product name	Product features	Dosed Strain& Price	Dosage and cost per ton	Package cost	The final products price
	Bio organic fertilizer	<ol style="list-style-type: none"> 1. With scientific formula, it can kill the adults and larvae of mole cricket, golden needle worm, nematode and other pests, and reduce the occurrence of a variety of soil borne diseases. 2. Activate soil, improve soil fertility, improve soil environment and increase the content of soil trace elements. 3. Green environmental protection, high fertility, strong roots, strong seedlings and disease prevention. 4. Improve the quality of agricultural products, low input and high output, promote early maturity of crops and improve fertilizer utilization rate. 	Bio organic strain	20 RMB/TON	China package cost 50kg bags, Cost 20 RMB per ton	1200 RMB/TON
	Flower organic fertilizer	<ol style="list-style-type: none"> 1. Complete nutrients and long-lasting fertilizer effect: after high-temperature sterilization, this product is rich in various nutritional elements and trace elements needed by flowers. 2. Good soil improvement effect: after use, this product can be absorbed by roots in a short time, and can promote the uniform growth of roots, stems, leaves, flowers and fruits. It has the characteristics of remarkable effect, lasting and soft fertility, no damage to roots, improving soil and improving plant disease prevention ability. 3. Strong activity and improved quality: after use, this product can promote flowers, bonsai and other plants to flourish, with strong stems, large flowers, colorful color and fragrant taste. 4. The organic fertilizer bacterial agent is suitable for viewing flowers, leaves, fruits, stems and aromatic flowers, such as tulip, rose, dahlia, peony, Rhododendron, chrysanthemum, Milan, jasmine, osmanthus, white orchid, nantianzhu, winter coral, Pyracantha and other flowers. 	Compound of minerals	Adding special Minerals compound		1 kg per package 14rmb/ Package



	Soy bean bio organic fertilizer	It contains soybean rhizobium, phosphorus and potassium dissolving active bacteria and rich organic matter. Bio organic fertilizer also contains a variety of substances to promote plant growth, such as a variety of trace elements, which can reduce the amount of 20 kg urea per mu and effectively kill the adults and larvae of mole cricket, golden needle worm, nematode and other pests, so as to reduce the occurrence of a variety of soil borne diseases, Achieve the goal of increasing production by 15% - 30%.	Compound of multi Single strain of RY strain products	100RMB/T ON	1800RMB /MT
	Peanut Bio fertilizer	<ol style="list-style-type: none"> 1. With scientific formula, it can kill the adults and larvae of mole cricket, golden needle worm, nematode and other pests, and reduce the occurrence of a variety of soil borne diseases. 2. Activate soil, improve soil fertility, improve soil environment and increase the content of soil trace elements. 3. Green environmental protection, fertility and high efficiency. 4. Strong roots, strong seedlings and disease prevention. 5. Improve the quality of agricultural products, low input and high output, promote early maturity of crops and improve fertilizer utilization rate. 	Compound of multi Single strain of RY strain products	100RMB/T ON	1800RMB /MT
Remarks		According to Local agriculture standards of its living strain accounts in the bio fertilizer products. So the dosage based on the standards regulated living microbes number. China follows NY798, and Vietnam also has its standards of bio fertilizer, To label the products as bio fertilizer must comply the local agriculture standards			

The recommendation of the strain with marketing benefits

After Covid 19 outbreak globally since 2020, there are many reasons to affect chemical fertilizer and pesticide importing for developing countries, who are the main chemical buyers from China. First is the low profit makes the exporter only in large commodity purchase that can make business balance, but the sea shipping cost has raised 4-5 times globally. Then the USD rate became unstable makes the chemical fertilizer trade more unstable.

So local production of organic fertilizer, to utilize local agriculture waste, and partly replace the chemical fertilizer and pesticide became urgent need by the African customers.

To start the business, we choose 2 different representative nature strains as the ordinary organic fertilizer addition, which makes customer easy understand the product profile at beginning, then step by step to expand to other strain addition of bio fertilizer.

Strain name	The nature of the strain	The specialty after dosage in the organic fertilizer as Bio fertilizer	To replace the conventional chemical dosage	The highlight when marketing	How price the products with local competition
<p>Anti Cropping agent (Repeating cropping resistant strain)</p>  <p>The product targets the main problems like imbalance of phosphorus & potassium nutrients in the soil, which is the repeating cropping obstacles, also tackle the serious soil-borne as well as lacking of essential middle & trace elements. Adopting the proprietary technology with strengthened actinomycetes and functional raw material to be processed. It can quickly colonize in the soil, transform the nitrogen, phosphorus, potassium elements in the soil, of which normally crops can absorb. And the product can effectively inhibit more than 30 soil-borne diseases in the soil. It can secrete a large amount of growth regulators at the same time. Using this product can increase crop production and income, improve crop quality. To apply the repeating cropping can effectively reduce the obstacles. Perennially effectively improve the soil structure and micro-ecological environment.</p>	Plant protection strain	It is a Compound of strain, with multi functional strain it has prevention effect to soil borne disease, and underground pest (noted, it is prevention, no curing, if happened, still need pesticide to treat) While, it provides Multiple trace elements, create soil nutritious structure.	Replace part of pesticides and fungicides	It is Biotechnology, has sustainable utility. The Organisms can reproduce in the soil.	1.5 to 2 times the price of local conventional organic fertilizer price
<p>Bio functional organic microbes</p>  <p>The product is a functional probiotic rich in natural nutrients, formula is scientifically designed. After application, the beneficial microorganisms can quickly colonize, decompose and activate inorganic mineral elements. Improve crop nutrition, promote crop growth, and enhance disease resistance. Long-term use of this product, can greatly improve fertility and water retention, cultivate the land fertility and optimize crop nutrient conditions, improve fertilizer utilization, increase production and income.</p>	Soil modification	Enriching soil microbial flora, can promote the growth of crop roots, release N.P.K. in the soil, effectively promote and release chemical fertilizer, improve the utilization rate of chemical fertilizer. At the same time, it can also control some soil borne diseases. Improve the quality of agricultural products	Reduce the amount of chemical fertilizer and improve the application efficiency of chemical fertilizer	It is Biotechnology, has sustainable utility. The Organisms can reproduce in the soil.	1.5 to 2 times the price of local conventional organic fertilizer price

