



微生物多重活性酵素
N-ZYME

- エヌザイム -

【 N-ZYMEで未来を救う
それが我々のミッションです。 】

N-Zyme® Application 2

By ISO Solution

Nov. 2021

- CROP;
Agronomy, Horticulture, Hydroponic and Flower



- LIVESTOCK;
Broiler, Layer, Duck and other livestock farming
- AQUACULTURE;
Shrimp, Fish and Aquarium

Overview

The United Nations has forecast that world population will hit 8.1 billion in 2025. A growth at such a rapid rate exerts immense stress on already scarce resources and diminishing food supplies. Ensuring food security and climate change is a top priority on most political agendas.

Around the world, governments have already shifted their focus to the development of primary sectors to ensure viable environmentally friendly food supply chains for the rapidly growing populace.

With a 'green economy' being touted as the mantra for many of the problems facing our world, N-Zyme offers a true sustainable alternative that can assist the agriculture, livestock and fishery sectors to utilize raw materials more efficiently, substitute the traditional use of chemicals with natural alternatives, reduce energy consumption, and also ensuring organic, higher yield and quality products.

Using proprietary natural microbial and enzymes biotechnology, N-Zyme's innovative biotechnology helps farmers to reduce cost, increase yield and eliminate food chain contamination.

All food sources for human are from cropping, livestock and aquacultures, most of this production processes are by systematic and business base of production. It means to produce the food sources for human has to be lowest cost, high productivity and shorter time. They have to find the cheapest available technology to serve their need. Most of convenience technology is chemical approach to use in cropping, livestock, and aquaculture.

But these technologies have a lot of negative impact in both short term and long term to human, for example

Crop: A lot chemical is used for kill germs in soil, a lot chemical fertilizer are applying while preparation, growing like pesticide, fungicide, and herbicide and harvest period are applying a lot chemical to preservative and make the shelf life longer.

Livestock: A lot of feed, vaccine, hormone and antibiotic are apply along the production stage.

Aquaculture: A lot chemical are applied while preparing water, pond to water good for the aquaculture. A lot of antibiotic are apply to kill pathogenic to prevent any health problem of those aqua life.

But those chemical, vaccine and antibiotic are become residual and contaminate to the food source when it is harvested. Then finally, it is affect to health and quality of life.

Crop

Cropping is the most food source of human.

While big increase of population in over the world, scientist is trying to get more productivity to have enough food from cropping. A lot of chemical fertilizer, pesticide, fungicide, herbicide, growth hormone, preservative agent are induced to apply the whole cycle of the crop from soil preparation, fertilizer, growing, post -harvest, storage, preservation, transportation.

After several years of applying these chemicals then it turn to have negative impact to the cropping like low yield, low productive, full of toxin over the cycle of cropping production then affect to human and animal health as consumers and become sickness and worse quality of life.

Crop

What was the sources problem?

It was starting from the soil which no longer fertile after intensive farming with highly chemical applied, soil full of chemical, too low or too high acid, while seed is full of some chemical coating, while plantation, fungicide, herbicide, pesticide were applied with growth stimulation, along the whole processes from soil preparation to harvest and post-harvest are applied chemical and chemical residual are still contaminated in the food cropping, and finally much affect to human life.



Crop

How can N-Zyme benefit those cropping

1. Soil preparation

a) Kill pathogenic in soil

- Those make root rot in plant for example, *Fusarium* sp, *Rhizoctonia* sp., *Phytophthora*
- Those that make leaf wilt for example; *Ralstonia solanacearum* (*Pseudomonas*)
- And other like *Alternaria* sp., *A. Flavus*, *C. gloeosporioides*, *F. oxysporum*, *Pestalotiopsis* sp, *Rhizomopsis* sp, *A. niger*, *A. parasiticus*

b) Kill aflatoxin that contaminated in soil

c) Increase probiotic, prebiotic and postbiotic in soil

d) Accelerate decomposing process of organic matter in soil in short time then become natural fertilizer and make the soil become loosely

Crop

How can N-Zyme benefit those cropping

- e) Increase natural growth hormone then will stimulate root to make root grow faster
- f) It can help to save high cost of fertilizer: Some Phosphate and Potassium source that over accumulate in unsuitable soil condition, these Phosphate and Potassium source could not be utilized by plant; it would become harder than plant could not absorb it. When apply N-Zyme (Lactic acid Bacteria group) it will change the soil to become acid then those Phosphate and Potassium can be utilized by plant, this is to save cost of the fertilizer.



Crop

How can N-Zyme benefit those cropping

2. Seed /root/stems preparation

- Kill pathogenic that contaminate in seed/stem/root
- To digest shell of seed then it will growth faster

3. Growing period

- To kill water borne disease when watering the crop
- Increasing yield by stimulates of root growth, Root will be longer and bigger to make higher photosynthesis then productivity is much higher. Increase the size and volume of productivity
- Extend period of productivity, earlier production period and longer harvest period

Crop

How can N-Zyme benefit those cropping

4. Post-harvest treatment

- It will kill toxin and sources of toxin like *A. flavus* and aflatoxin
- Killing food borne bacteria like: *Salmonella*, *Vibrio*, *E coli*, *Listeria monocytogenes*, *Stap aureus*, *Bacillus cereus*, *Clostridium sp*, *S. typhimurium*, *V. parachaemolyticus*
- Killing fungus in fruits and vegetable
- Extend shelf life of fruit and vegetable (for example vegetable will around 1 week then after applying the N-Zyme it will become 2 weeks, also banana, apple, mango etc)



Crop

How can N-Zyme benefit those cropping

5. Making organic fertilizer from agricultural waste
 - Food waste, farm and agricultural waste, agro-industrial waste can be the best fertilizer in short (After applying N-Zyme, it will accelerate decomposing process from many months to only 1 month)

6. Hormone or leaf fertilizer is the most efficacies to use as leaf fertilizer to make very high yield of cropping.



Livestock

As the main protein sources of human food are from livestock. Most farms are applying any technology, chemical to use by intensive farming which trying to obtain high turnover rate and lowest cost of production, high profit from the sale without any caring on affect from the method of farming,

What is the problem?

- All intensive farming are using many antibiotic, some may use hormone to make more productivity
- A lot vaccine is apply
- A lot chemical to kill toxin that contaminated in feed, in water
- Intensive farms made to much stress to animal affect to high mortal rate, immunity drop, and high abnormal rate in each litter
- Try to use many chemical to improve meat or milk quality
- Finally, all of those problem become affect to human health directly

How N-Zyme benefit to Livestock

N-Zyme can apply by mixing with feed, mixing with water, for cleaning pen.

1. Cleaning pen/farmyard

Cleaning pen, farmyard and pond: Normally farm pen, yard, pond are so smelly and dirty, it is a source of house fly, mosquito, mite, tick that affect to health of the livestock. N-Zyme will eliminate the smell and digest organic matter manure, animal urine to make the pen, farmyard, pond become clean. It will kill fly, egg, mosquito egg, mite, tick egg. It is very important to clean before stocking.

Livestock

2. Increase immunity

When feeding or mixing with premix or drinking N-Zyme, it will improve system of digestive and metabolic of animal and increase the immunity of the animal itself. When it has high immunity enough then it would not be infected or sick.

3. Increase yield by

- Increase Average Daily Gain: After feeding or drinking, it will make weight increase faster, growth faster.
- Reduce Feed Conversion Rate: for meat 1 kg of increasing will be taken less feed.
- Reduce mortal rate
- Reduce abnormal rate in baby animal, normally in each litter will some abnormal body of baby but after talking

N-Zyme, it will decrease up to 90 -100 %, For example, 1 litter has 10 babies, it may have 3-5 babies are abnormal then after take N-Zyme s, it will has none or 1 abnormal.

- Increase mating period
- More Semen and strong sperm and get more and stronger baby in one litter
- Increase period of production, for example longer laying period, longer giving milk period.
- Increase more quality of meat (Some animal measured by weight of lean or fat)

Livestock

4. Improve environment in farm

- Eliminate smell
- Eliminate mosquito and fly
- Eliminate mite, tick

5. Increase Biogas (Anaerobic condition)

Some farm may use the manure to make Biogas, the biogas will be more 30-40 % with lower Hydrogen sulfide and Ammonia, Carbondioxide

6. Making high quality of fertilizer

Some farm may use the manure mixing with agricultural waste to become natural fertilizer. It will be become natural fertilizer very fast and good quality and keep higher Nitrogen source and Carbon source as fertilizer with lower temperature and much shorter time (In anaerobic condition)

7. Waste water can be watering water to plant

Normally, in the urine and dung released from the pen to pond will be very high toxic for plant that could not be used for watering. When apply N-Zyme for Cleaning pen, drain, then it would make the water good for plant and make plant grow faster. (Some animal farm may use very high salt in farm, please check salt content too, if high salt then salt will affect to plant)

Aquaculture

As the matter of fact of problems in aquaculture which most are intensive farming, it is found a lot of antibiotic is applied, so many blue green algae, outbreak (consequence from low immunity), louse etc.

What N-Zyme can benefit to Aquaculture

1. Pond preparation

- As so many organic matters in the bottom of the pond is the source of problem for aquaculture, water and soil in the bottom shall be cleaned and good for the stocking. The organic matters are in the soil, in the sludge, mud in the water that made very high pathogenic microbes, toxic gases and toxin accumulate in the pond. It is very difficult to eliminate.

N-Zyme will digest those organic matter, toxic gases, toxin and Blue Green Algae. Just add the Enzymes in the bottom of the pond then it will automatic work without any heavy equipment apply to it

2. Cleaning the water and Blue green algae

- Access feed from feeding will make total organic matter high and water quality become worse. Blue green algae will bloom, while blooming it will take a lot of Oxygen then make Oxygen in the water drop, when it is sink down, it will release a lot of Ammonia that high toxic to aqua life , making immunity drop and infect easily.
- In this condition of water, that good for pathogenic bacteria, in case of outbreak then it will easy to infect while immunity of the aqua life is dropping.

When apply N-Zyme, it will digest organic matter, Blue Green algae, digest Ammonia and other toxic gases, killing pathogenic like Vibrio and other bacteria. This will save a lot antibiotic that so much affect to us.

Aquaculture

3. Increasing immunity

- When mixing N-Zyme, it will increase the immunity of the aqua life, make good digestive and metabolic of the aqua life become healthier.
- Digest toxic gases. Toxic gases will make immunity of all aqua life drop, when eliminate the toxic gases then the immunity will increase

4. Increase yield of the aqua life.

- Increase Average Daily gain. Rate in increasing weight is more
- Reduce Feed Conversion rate. To get 1 kg of aqua life, feed consumption will be less.
- Less mortal rate: The aqua life will be healthy and high immunity then effect to make very less mortal
- More intensive farming. It can be increase to become more intensive farm and can save all management cost.

5. Killing louse and other parasite.

- Louse and parasite is the most problem in some area. Louse and parasite like to live in alkaline condition with high organic matter, louse and parasite reproductive is by egg. N-Zyme will eliminate access organic matter and make the water become a little acid condition which louse nor parasite could live in and also the N-Zyme will kill egg worm in larva stage.