



# BIO-CHEMICAL FERTILIZER

AgriCulture Innovation



# PEPPER

With Bio-Control Agent to control and prevent soil pathogens

## REALSTRONG 3 IN 1 PEPPER FERTILIZER



### PEPPER

Global production of pepper increased dramatically between 2007 and 2013, from 302,928 tonnes to 339,800 tonnes, an increase of between 3 to 7 % per annum. The International Pepper Community ( IPC ) has forecasted another increase in world pepper production to 490,000 tonnes by 2020. The ratio of black to white pepper production is around 70:30. Malaysia is one of the world's major producers and exporters of pepper. More than 98% of Malaysia's production comes from the state of Sarawak. Pepper now ranks as the fourth most important agricultural export earner after palm oil, rubber, timber and cocoa. The present estimated pepper-planted area is 15,000 hectares.

### Chemical Fertilizer + Plant-Based Matter and Microorganisms

This is a bio- chemical fertilizer for day-to-day agriculture. It is chemical materials ( N,P,K,B, TE ) combined with plant-based organic matter and microbes for long-term, sustainable crop yields.

### Effective Microorganisms ( EM )

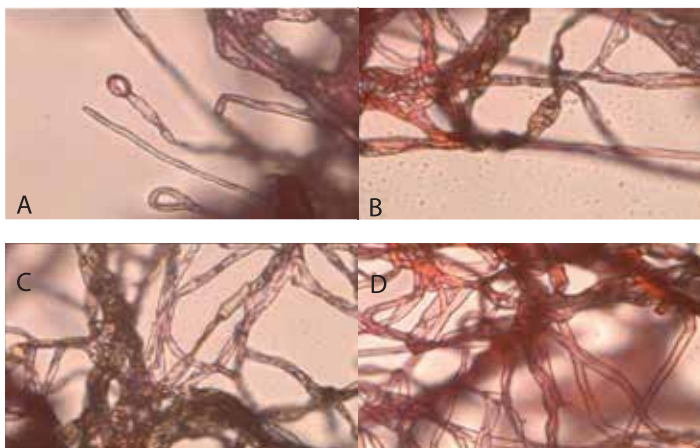
Microbes are the oldest form of life on earth. They are able to enhance the growth and production of pepper through nitrogen fixing, phosphate and potassium dissolving as well as facilitate the breakdown of organic materials. These beneficial microbes are able to control various types of pathogens in the soil through different mechanisms and actions.

### Integrating Inorganic and Organic Materials

Integrating inorganic and organic materials can increase the soil pH. This formula improves the efficiency of nutrient uptake by the crop and enhances the retention of nutrients in the soil for the long term to improve soil quality.

## ALL COSMOS INDUSTRIES AND MALAYSIA PEPPER BOARD IN RESEARCH COLLABORATION

Through this collaborative research, it has been identified that microorganisms as bio-control agents can control and prevent diseases in pepper plants : such as infection caused by soil-borne disease like white root, basal stem rot and Nema-tode attack. The research also identified the optimum nutrient levels needed for different stages of pepper vine growth. It also led to a deeper understanding of the benefits of bio-chemical fertilizers as compared to the damaging, long-term use of pesticides and chemical fertilizers.



### Pepper Fertilizer contains

N:15 P<sub>2</sub>O<sub>5</sub>:5 K<sub>2</sub>O:14 MgO:2 B<sub>2</sub>O<sub>3</sub>:0.5 + TE  
Chemical 70% + Organic 20% + Zeolite 10%

*Hypha morphology of pathogenic fungus as effected by antagonists. Occurrence of bubbles and vacuole (A), thickened and swelled hyphae (B), slimming of hyphae (C) and (D), normal hyphae. (C.A Yap, Malaysia Pepper Board)*

### Chemical Fertilizer

N: Urea, Ammonia Sulphate ( AS ), P: Rock Phosphate/ Mono-Ammonium Phosphate ( MAP ), K: Muriate of Potash ( MOP ), Sulphate of Potash ( SOP ).

### Effective Microorganisms ( EM )

The species of microorganisms contained in the 3 in 1 fertilizer do the job of fixing N and dissolving P and K as well as controlling the soil pathogens through different modes of action.

### Organic Matters and Zeolite

Cocoa, coffee, rice bran, palm bunch ash, palm decanter cake and volcanic ash ( zeolite ).



## Application Recommendations of MPB Fertilizer







MPB pepper fertilizer's application rate can be divided into two ( 2 ) main categories:

- 1) Fertilising schedule for immature vine ( 1st month – 20th month )
- 2) Fertilising schedule for mature vine ( 20th month and above )




## FERTILIZING FOR MATURE VINES

Months after planting	Quantity per vine	Remarks
August	250g	Flowering stage
September	250g	
October	250g	
November		Fruit development stage
December	250g	
January		
February	250g	
March		Harvesting stage
April		
Mei		
Jun	250g	Recovery stage
July	Dolomite (if necessary)	

## FERTILIZING SCHEDULE FOR IMMATURE VINE

Months after planting	Quantity per vine	Remarks (Semongok Aman Variety)	Remarks (Kuching Variety)
1 month	–		
2 months	30g		
3 months	30g		
4 months	30g		
5 months	50g		
6 months	50g		
7 months	50g		
8 months	50g		
9 months	80g		
10 months	80g		

## FERTILIZING SCHEDULE FOR IMMATURE VINE

11 months	80g		
12 months	80g		
13 months	100g		
14 months	100g		
15 months	100g		
16 months	150g		
17 months	150g		
18 months	150g		
19 months	250g		
20 months	250g	