

BIONEMAGON™

Bacillus firmus

Bio Nematicide

APPROVED FOR USE IN ORGANIC AGRICULTURE

Introducing BIONEMAGON™

BIONEMAGON™ is a biological nematicide based on a selected strain of naturally-occurring entomopathogenic soil bacteria *Bacillus firmus* (NCIM 2637) that infects and kills both larvae and adult stage of many plant pathogenic nematodes like *Meloidogyne spp*, *Heterodera spp*, *Helicotylenchus spp*, *Hoplolaimus spp*.

BIONEMAGON™ contains vegetative cells of *Bacillus firmus*. It is formulated as Wettable Powder with CFU count of 1×10^8 / g. BIONEMAGON™ is approved for use in Organic agriculture.

Mode of Action

Substrate Competition for Nutrients: BIONEMAGON™ colonizes and absorbs maximum nutrients available at the target site and thereby controls the nematodes by competing and starving them for food

Toxin production: BIONEMAGON™ produces secondary metabolites and toxins like cyclodextringlycosyltransferase that is toxic to nematode species which aid in killing it.

Method of Application

Soil application: Mix 75-150 Kg BIONEMAGON™ and incorporate to root zone of crops. BIONEMAGON™ can be sprayed on ground at land preparation stage.

Drip irrigation: Mix BIONEMAGON™ in sufficient quantity of water and filter it. The decanted liquid can be used for drip irrigation.

Target Pests

Root - knot nematode, Remiform nematode Cyst nematode, Burrowing nematode, Lesion nematode and many other nematode species.

Crops

BIONEMAGON™ is suitable for application on Cereals , Millets , Pulses, Oilseeds, Fibre Crops , Sugar Crops , Forage Crops , Plantation crops ,Vegetables, Fruits, Spices , Flowers , Medicinal crops , Aromatic Crops , Orchards and Ornamentals.

Compatibility

BIONEMAGON™ is compatible with BioPesticides and BioFertilizers.

Shelf Life

BIONEMAGON™ is stable for a period of 12 months from the date of manufacturing.

Mass Composition

CONSTITUENT	W/W %	FUNCTION
<i>Bacillus firmus</i> (vegetative cells)	1.0%	Active
Moisture	08.00% max	Inactive
Carrier Powder - Kaolin	q.s.	Inactive

Biological Composition

CONSTITUENT	CFU/g.	FORMULATION
<i>Bacillus firmus</i>	1*10 ⁸	Wettable Powder

Other Formulations available

<i>Bacillus firmus</i> CFU/g	1*10 ⁹	Soluble Powder
<i>Bacillus firmus</i> CFU/ml	1*10 ⁹	Liquid
<i>Bacillus firmus</i>		Lyophilized

Free from *Salmonella*, *Shigella*, *E.Coli*

Cautions for handling and use of product

1. Avoid inhalation and skin contact while diluting as there could be spillage / splashes of the product.
2. Mixing and spraying equipment is to be thoroughly rinsed with water and detergent before using the same equipment for spraying other pesticides.
3. Surplus of product should not be disposed in crop lands / stagnant water / flowing water where there is a possibility of causing pollution to natural resources
4. Do not eat / drink / smoke during application.
5. Direct incidence of BIONEMAGON™ may cause irritation and therefore it is recommended that the operator should use protective gear viz gloves, apron, mask, eye gear and hood.

Symptoms and Antidotes

Symptoms: Occasional symptoms include head ache and nausea.

Antidote: In the case of ingestion: symptomatic treatment is advised. In the case of contact with Eyes: Flush with water liberally for 20 minutes. In case of Skin contact, was the affected area with plenty of water and soap.

Citations

There are many citations in public domain on effectiveness of *Bacillus firmus* as a BioNematicide

Commitment to Nature

- **BIONEMAGON**[™] is approved for use along with biofertilizers like Agri Life Nitrofix[™] (Nitrogen Fixing bacteria) ; P Sol B[®] (Phospho bacteria) ; K Sol B[®] (Potash mobilizing bacteria); Zn Sol B[®] (Zinc mobilizing bacteria) ;S Sol B[®] (Sulphur solubilizing bacteria) : Si Sol B[™] (Silica solubilizing bacteria) ; Fe Sol B[®] (Iron / Ferrous solubilizing bacteria) : Mn Sol B[™] (Manganese solubilizing microbe) and Agri Life Agrivam[®] (Vesicular-arbuscular mycorrhiza)
- **BIONEMAGON**[™] is safe to earthworms.
- **BIONEMAGON**[™] can be used as an effective component in IPM programmes, thereby leading to a reduction in use of chemical pesticides and creating a safer environment.
- **BIONEMAGON**[™] does not lead to residue problems and doesn't cause resistance or resurgence problems.

Benefits from **BIONEMAGON**[™]

- **BIONEMAGON**[™] effectively controls most of the economically important nematodes such as root knot nematode, cyst nematode, burrowing nematode and lesion nematode.
- Pest reduction leads to improved plant health and thereby increased crop productivity.
- **BIONEMAGON**[™] is earthworm friendly , pet friendly , eco friendly and infant friendly