

Nicoderma

Trichoderma viride 1% w.p.



Trichoderma viride (2×10^8 cfu/gm. Minimum) Talc based formulation. Trichoderma viride is an antagonistic fungal organism present in the soil and is highly effective for the control of seed and soil borne diseases of a majority of economically important crops, especially pulses and oil seeds. This bio control agent when applied along with seed, colonizes the seed and multiplies on its surface. It kills not only the pathogens present on the surface of the seed but also gives protection against soil borne pathogens through the life of the crop by action of mycoparasitism and antibiosis. Seed treatment with Trichoderma viride has registered higher germination in a number of studies and was at par with "Captan". It is effective for control of soil borne diseases caused by Rhizoctonia solani, Macrophomina phaseolina and Fusarium spp; and is a very important weapon against diseases such as root rot, seedling diseases, charcoal rot, wilt, damping-off, collar rot, etc. The potential of Trichoderma viride in managing soil borne pathogens has been demonstrated in many crop diseases like seedling disease of cotton (Ramakrishna and Jeyarajan, 1986; Agarsamy et al., 1987a and b) root rot of soyabean (Jharia and Khare-1986), root rot of Cowpea (Alagarasami Shivaprakasam. 1988), charcoal rot of sorghum (Sekhar and Analosur, 1986) and root rot of mung bean caused by Macrophomina phaseolina (Samiyyapan et. al, 1987). Nicoderma may also serve plants as a biofertilizer due to its Phosphorus solubilizing activity and its ability to decompose organic matter into growth promotary humic matter, resulting in increased availability of micro nutrients to plants.

Dosage :

4 kg per ha. Preferably mixed with 2 tons of any organic matter such as orgo blended organic fertilizer/FYM.

Packaging :

500gm LDPE bag

1kg LDPE bag

Application Guidelines :

Apply near the root zone , preferably leaving a 7 day gap on either side before applying chemical fertilizer or pesticide.

Management of plant pathogens/diseases by biocontrol agent Nicoderma

Cereals

Crop	Disease	Pathogens	Mode of Application
Rice	Banded Blight	R.solani	Seed , Soil , Seedling Treatment
Rice	Bunt	Neovossia indica	Seed treatment
Rice	Brown spot	Drechslera oryzae	Seed treatment
Rice	Sheath Blight	R.solani	Soil treatment , Seed treatment and follar spray
Sorghum	Seed Pathogens	A.flavus , A.niger , Alternaria alternate	Seed treatment
Wheat	Karnal bunt	Neovossia indica	Seed treatment
Wheat	Loose Smut	Ustilago segatum tritici	Seed treatment

Pulses

Crop	Disease	Pathogens	Mode of Application
Chickpea	Wilt , seed rot , Root rot , collar rot	F.oxysporum f. sp. Ciceris , S.rolfsii , R.solani , R. bataticola , M. phaseolina	Seed & Soil Treatment
Cowpea	Root rot , Wilt	M. phaseolina fusarium oxysparum , F. sp. Trachelphilum	Seed & Soil Treatment
Mung bean	Root rot	M. phaseolina	Seed & Soil Treatment
Pea	White rot	Sclerotinia scleratiurum	Soil Treatment
Pigeonpea	Wilt	F. udum	Seed & Seeding Treatment
Soybean	Root rot	M. phaseolina	Soil Treatment

Commercial Crops

Crop	Disease	Pathogens	Mode of application
Cotton	Seedling Disease	R. Solani	Seed Treatment
Sugarcane	Root rot	Pythium graminicola	Soil Treatment
Sugarcane	Red rot	Colletotrichum falcatum	Soil Treatment & Spray
Sugarcane	Wilt	F. moniliformae	Seed Treatment

Sesamum

Crop	Disease	Pathogens	Mode of Application
Groundnut	Collor rot , Root/Crown rot	A. Flavus , S.rolfsii, A.niger	Seed Treatment Soil Treatment
Mustard	Damping off	Pythium aphanidermatum	Seed & Soil Treatment
Saltlower	Root rot	M. Phaseolina	Soil Treatment
Sesamum	Root rot	M. Phaseolina	Seed & Soil Treatment
Soybean	Root rot	M. Phaseolina	Soil Treatment
Sunflower	Root/Collar rot	Sclerotium rolfsii , R.solani , S. sclerotiorum	Seed Treatment

Plant Pathogens / diseases

Crop	Disease	Pathogens	Mode of Application
Cabbage	Damping off	Rhizoctonia solani	Seed Treatment
Egg Plant	Wilt , damping off	F. solani , pythium aphanidermatum	Seed & Soil Treatment
Egg Plant	Collar rot	Sclerotinia sclerotiorum	Soil Treatment
Melon	Collar rot	R. bataticola	Seed Treatment
Mung bean	Root rot	M.phaseolina	Seed & Soil Treatment
Potato	Black-scurf	R.solani	Tuber Treatment
Tomato	Damping off	Pythium indicum	Seed & Soil Treatment

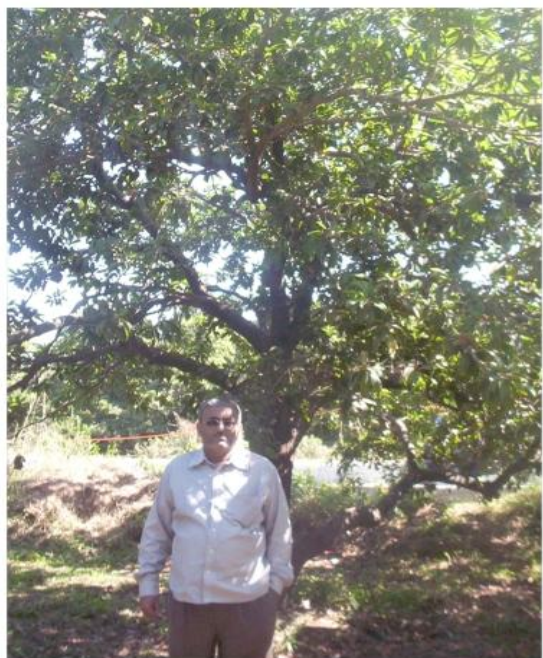
Plant Pathogens / diseases

Crop	Disease	Pathogens	Mode of Application
Apple	White root rot	Dematophora necatrix	Soil Treatment
Banana	Panama Disease	Fusarium oxysparum f. sp. Cubense	Sucker Dipping with T.v(10^6 cfu/ml)+wheat bran
Citrus (Mandarin)	Root rot	Phytophthora nicotianae	Soil Treatment
Mango	Fruit Rot	Pv. Parasitica , P. colacasiae	Fruit Treatment
Passion fruit	Collar rot	Lasiodiplodia theobromae , Rhizopus amhinus	Seed Treatment

Nicoderma Result in Sapota :



Before Nicoderma



After Applying Nicoderma

Nicoderma Result in Castor :



With Nicoderma



Without Nicoderma

Nicoderma Result in Wheat :



With Nicoderma



Without Nicoderma

Nicoderma results in Tobacco crop :



With Nicoderma



Without Nicoderma

Nicoderma Result in Sugarcane :



Nicoderma Result in Potato :



Certificate of Analysis

NICODERMA

Trichoderma viride 1% W.P.

Batch No. : 089
Date of analysis : 01/08/2014
Mfg. Date : 01/08/2014
Expiry Date : 01/01/2015

Sr. No.	Characteristic	Requirement	Results Obtained
1	Color	Off white	Complies
2	Physical nature	Free flowing powder.	Complies
3	Count	1.9×10^8 CFU/gm.	Complies

Remark: The above product complies as per specification.

For Nico Orgo Manures

For Nico Orgo Manures

Quality Control Dept.

Partner

Microbiologist

Material Safety Data Sheet

NICO ORGO MANURES

1. Chemical Products and Company Identification

Product Name : Nicoderma

Produce Code : Trichoderma Viride

Chemical Formula : Mixture

Other Designations : Powdered Formulation Containing Agriculturally
beneficial microorganisms.

Company :

NICO ORGO MANURES

Opp. Railway Station,

Dakor – 388 225.

(Gujarat – India)

Phone : +91-2699-244403, 244611

Fax : +91-2699-244903

2. Composition / Information on Ingredients

No Hazardous Ingredients.

Contains naturally-occurring, non-pathogenic, microorganisms in powdered formulation. This includes Trichoderma viride popularly used in agriculture for disease control. See Product label for method of application, dosage and recommendations. Not for food, feed or drug use.

3. Hazards Identification

Emergency Overview : No known health hazards

Primary Entry Routes : Oral (swallowing), Inhalation

Acute Effects (Signs and Symptoms of Overexposure) :

Eyes : Liquid may cause mechanical irritation of eyes

Skin : No known hazard

Inhalation : Inhalation of large amounts may cause discomfort

Ingestion : No known hazard

Chronic Effects : No known hazard

Medical Conditions Aggravated by Exposure : None known

Target Organs : None

Carcinogenicity : None

HMIS : Health – 0, Flammability – 0, Reactivity – 0

4. First Aid Measures

Eyes : Flush with water for at least 15 minutes. Get medical attention if irritation persists.

Skin : Wash with soap and water

Inhalation : Remove person to fresh air. Get medical attention if discomfort Persists

Ingestion : No treatment necessary

5. Fire Fighting Measures

Flash Point : None

Autoignition Temperature : Not Applicable

Explosive Limits : LEL: Not Applicable
UEL: Not Applicable
Extinguishing Media : Use media suitable for
surrounding fire
Unusual Fire or Explosive Hazards : Not Known
Fire Fighting Instructions : No special requirement

6. Accidental Release Measures

Large Spill / Leak Procedure : Contain spill and recover for use
or disposal
Small Spills : Flush area with water

7. Storage and handling

Storage Requirements : Store in original container in
clean, cool and dry place. Use
before expiration date printed on
package

Handling Precautions : No special handling requirements.
Follow normal hygienic and
housekeeping standards for
agricultural products

8. Exposure Control / Personal Protection

Ventilation	: Special ventilation is not required
Protective Clothing / Equipment	: No special requirement
Respirator	: Not required
Contaminated Equipment	: Clean with soap and water
Comments	: Practice general personal hygiene after using this product. Wash hands with soap and water before eating, drinking or smoking.

9. Physical and Chemical Properties

Physical State	: Powder
Colour	: White to Pale yellow
Odour	: Mild
Water Solubility	: Soluble
% Volatile volume	: Not determined
Specific Gravity	: 1
Vapour Pressure	: Not determined
Vapour Density	: Not determined
pH	: 6.5 – 7.0
Melting Point	: Not Determined
Boiling Point	: N.A.
Freezing Point	: N.A.

10. Stability and Reactivity

Stability	: Stable
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Conditions to avoid : None

Hazardous Polymerization : Will not occur

Chemical Incompatibilities : Avoid contact with any chemical

Hazardous products of decomposition : None

11. Toxicological Information

Eye Effects / Eye Irritation : Non-irritating

Acute Oral Effects : None

Acute Inhalation Effects : None

Acute Dermal Effects : None

Skin Irritation : Non-irritating

Skin Sensitization : Not a skin sensitizer

12. Ecological Information

The product contains non-pathogenic bacterial strains that occur naturally in soil and is biodegradable.

13. Disposal Consideration

Disposal: Small amounts of the product which cannot be used according to the label instructions may be disposed off in a landfill

RCRA Waste Status: This product is not regulated as a hazardous waste. State and local regulation may affect the disposal of this product. Consult your state, local or provincial environmental agency for disposal of waste other than by use according to instructions.

14. Transport Information

Transportation Data : This product is not regulated as a hazardous material for all

modes of transportation

Hazard Class : Not Applicable

ID No. : Not Applicable

15. Regulatory Information

TSCA : All components of this product are
listed on TSCA Inventory

SARA Section 313 : Contains no reportable components

OSHA Hazard Classification : Non Hazardous

Proposition 65 : Contains no components subject to
Warning requirement

WHMIS / Controlled Products Regulations : This products has been classified in accordance with the hazard criteria of the CPR and this MSDS contains all of the information required by the CPR

16. Other Information

NFPA Ratings

Health : 0

Flammability : 0

Reactivity : 0

Specific Hazard : Not Applicable

Information presented on this Material Safety Data Sheet is believed to be accurate at the time of publication. No warranty, expressed or implied, is made with regard to this information. This information may not be adequate for every application, and the user must determine the suitability of this information due to the manner / conditions of use, storage or local regulations.
