



ECONEMATA Technical Sheet

ECONEMATA is a complete microbial amendment made up with naturally occurring strains of bacteria and fungi developed to make the substrate environment unfavorable to the proliferation of phytoparasitic nematodes.

The strains present in ECONEMATA form symbiosis with the roots of the plants (rhizospheric strains). Once established on the surface of the roots these strains secrete metabolites that stimulate plant response to stress and are unfavorable to phytoparasitic nematodes at diverse stages of development (eggs, larvae, adults).

Specifically, the strains in ECONEMATA

- Produce active metabolites (phyto-hormones) that stimulate plant root growth (Plant Growth Promoting Rhizo-Bacteria (PGPRB))
- Stimulate Induced Systemic Resistance (ISR) to pathogens associated with nematodes
- Produce enzyme (chitinase) that breaks down the wall of pathogenic nematode larvae
- Produce metabolites that cause competitive exclusion of nematodes.

ECONEMATA is available as a dry powder. ECONEMATA is 100% soluble in water.

Composition

ECONEMATA is a synergistic formulation made with natural microbes with no genetic modification. The beneficial microbes belong to the genus *Bacillus*, *Paenibacillus*, *Brevibacillus*, *Pseudomonas*, *Streptomyces* and *Trichoderma*.

Total counts of microbes: 1.77×10^9 CFU/gr.

Mechanisms of action

Plant Growth Promoting Rhizo-Bacteria (PGPRB)

(Bacillus, Paenibacillus)

Gibberellin, Auxin (Indole Acetic Acid), Cytokinins production

Auxins control root architecture, vascular tissue differentiation, lateral root initiation, polar root hair positioning & root gravitropism. Gibberellins control cell elongation, cell division, cell differentiation & stress reduction. Cytokinins control cell division (cytokinesis) in roots & shoots, increased resistance to drought, chlorophyll synthesis. PGPRB promote plant growth independent of supplemental fertilizer applications.

Rhizo-Bacteria, which Stimulate Induced Systemic Resistance (ISR)

(Bacillus, Pseudomonas)

Plant health is induced by exposure of plant roots to specific Plant Growth Promoting Rhizo-Bacteria (PGPRB). Process dependent on signaling via phyto-hormones, jasmonic acid and ethylene, results in production of phenolic compounds.

Bacteria, Actinobacteria & Fungi that make environment unfavorable to nematodes

(Streptomyces, Trichoderma, Pseudomonas, Bacillus)

Release a variety of secondary metabolites which are antagonistic to pathogenic fungi, viruses and phytoparasitic nematodes. Produce chitinase (breaks down chitin based cell wall of pathogenic fungi and phytoparasitic nematode larvae). Produce a variety of cell wall degrading enzymes & ethyl acetate to control nematodes.

All microbes originate from the American Type Culture Collection and have been determined to be non-pathogenic to plants or animals. The microbes are maintained cryopreserved at -80 degrees Celsius. The strains are multiplied individually under liquid conditions in aseptic systems that guarantee no contamination. The produced microbes are spray dried and processed under aseptic conditions. The dry strains go through a strict quality control process where presence of contaminants, viable counts and activity are determined. Finally the strains are blended into the formulation to guarantee the composition of each batch.

Application rates

ECONEMATA can be applied to the soil with any irrigation system, however, best results are obtained with drench and drip irrigation. We recommend to get the soil moist before application of ECONEMATA and add water after application to help the product penetrate the soil to the root depth.

Apply ECONEMATA 5 to 10 days prior to planting at a rate between 1.1 and 3.4 kg/ha (1 to 3 lbs/acre), depending on nematode counts. Repeat application at the same dose at planting. If nematodes continue to be present re-apply the product on monthly based. For fields with a history of nematode damage we recommend continuous monthly applications during the growth cycle at a dose rate between 0.55 kg to 3.4 kg/ha (0.5 to 3 lbs/acre).

Recommendations

Flush irrigation systems and sprayers with plenty of water from any pesticide residue before applying ECONEMATA. Avoid applying pesticides one week before and one week after applying ECONEMATA.