

BIOPROTECTORS



BIOPROTECTORS INTRODUCTION

The intensive use of synthetic pesticides in pest control activities can cause resistance and therefore resurgence of target pests. Undesirable effects on the environment, including reduction in natural enemies (predators and parasitoids) and beneficial insects, are also possible.

A major concern is the effects of synthetic pesticides on human health. In the last few decades, **bioprotectors have emerged as a potential alternative to synthetic pesticides.**

The information contained in these data sheets is result of the work of the people that make up the Department of Research and Development of **SONARAGRO**. His experience acquired from the bibliography, laboratory and field experiences, have allowed us to design the products included in this section.

“Botanicals are future potential sources for development of ecofriendly products for crop protection and nutrition”

- Nagappan Raja 2014.

BIOPROTECTORS PRODUCTS



Citron
sonar



CROP
SAFE



NEMATURAL
PLUS
BOTANICAL



QUITO
CARE

Citron sonar

BIOPROTECTORS PRODUCTS



COMPOSITION %W/V

Sweet Orange Extract	23.0
Zinc (Zn) Soluble in Water	2.3
Manganese (Mn) Soluble in Water	1.1

CHARACTERISTICS

Citron Sonar is an excellent natural bactericidal and fungicidal based on citrus extract, it has low toxicity for humans and animals. It's specially indicated for controlling of fungus and pathogenic bacteria in fruit trees and vegetables.

In vine, *Botrytis cinerea*, *Oidium* sp and "sour rot"; in tomato, *Botrytis cinerea* and *Alternaria*; in banana, *Mycosphaerella fijensis*; in mango, *Colletotrichum* sp. and *Oidium* sp.; in artichoke, *Botrytis* sp. and *Erwinia* sp. Moreover, it has an action in post-harvest fungus like: in banana *Colletotrichum musae* and *Glomerella cingulate*; and in vine, mango and citrus, *Penicillium* sp. and, at last, in asparagus, *Erwinia* sp.

Citron Sonar is exempt of tolerances in EPA, that way it doesn't have any restriction about lack in applications until harvest.

Due to the characteristic of this **organic and natural products**, it's **able to use in the harvest without troubles** related to residues (0 days of carency), claiming a good post-harvest.

It's recommended a **maximum of 3-5 times of application each season** of the crop.

Bioprotection and Quality

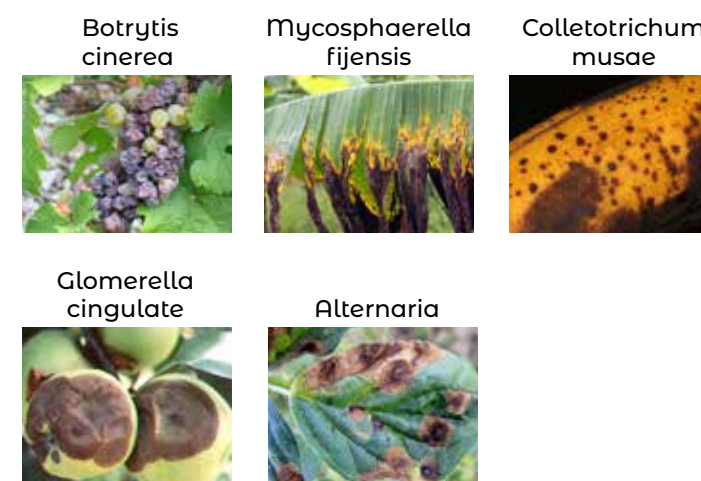
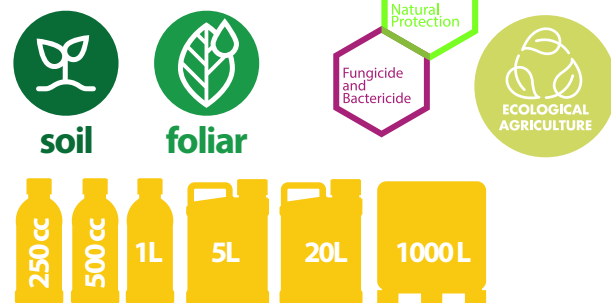
CAUTION

Citron Sonar is compatible with most foliar fertilizers and plant protection products. Before tank mix, observe pesticide label directions and make jar test for compatibility.

APPLICATION

Crops	Root	Foliar	Application	
Cauliflor, Corn, Cucumber, Grapevine, Lettuce, Melon, Ornamentals, Pepper, Pome and stone fruits, Post-harvesting, Rice, Strawberry, Tomato, Tubers	Preventive	0,75 - 1,5 L/Ha	1 - 2 L/Ha	Apply every 10 - 20 days
	Healing	1,5 L/Ha	2 L/Ha	Apply every 5 - 7 days up to recovery the crop
Post- Harvesting	1,5-2,5 mL/L (4-11Kg Fruit)			

Bioprotector



CROP SAFE



Bioprotector



BIOPROTECTORS PRODUCTS

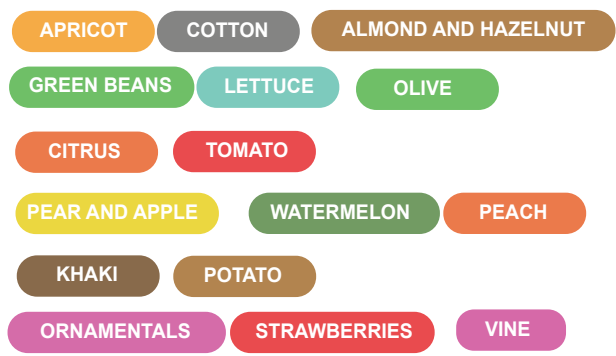
COMPOSITION %W/V

Total Nitrogen (N)	4,8
Ureic Nitrogen (N)	4,8
Zinc water-soluble complex (Zn)	1,0
Manganese water-soluble complex (Mn)	2,0
Copper water-soluble complex (Cu)	2,0
Density:	1,2
Complexing agents: Aluminium Lignosulphonates and gluconic acids	

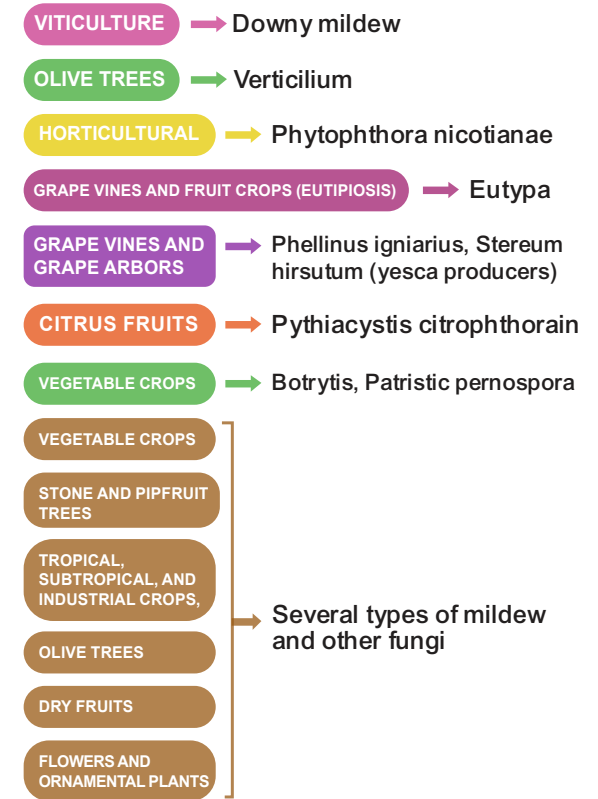
CHARACTERISTICS

CROP SAFE It's established as an organic product of vegetable origin. Because of its great purity and quick absorption in different vegetable tissues, CROP SAFE makes an essential product for the growth, maintenance and protection of plants.

- Complete systemia (ascending and descending).
- Stimulates complete distribution throughout the whole plant.
- Immediate response from the plant's self-defense systems.
- Targeted Agents: Endogenous and exogenous fungi



EXAMPLES



DOSES AND APPLICATION

CROPS	FOLIAR APPLICATION	DOSAGE
All crops	Wetting the whole plant, including its trunk.	200-400cc per 100L of water

Grapewine	As a preventive measure, 2-3 times throughout the vegetative cycle. Raise the dosage spraying the trunks.	1 L per 100 L of water.
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CROPS	TRICKLE IRRIGATION	DOSAGE
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Adult tree	Diluted in water before applying.	10 cc / Ft
Plants	Diluted in water before applying.	5 cc / Ft
Crops	Diluted in water before applying.	5 cc / Ft

*For specific crops, please consult our technical department

NEMATURAL PLUS

BOTANICAL



Natural Nematicide Bioprotector



soil



foliar



Natural Protection



BIOPROTECTORS

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COMPOSITION %W/V

Plant extract (Gramineae Sp.)	70.0
Phosphorus (P ₂ O ₅)	8.0
Potassium (K ₂ O)	4.0
L-Amino Acids	2.0

CHARACTERISTICS

NEMATURAL PLUS is a naturally derived bione-maticide for control of parasitic nematodes in agricultural and ornamental crop. May be applied by ground spray applications, drip irrigation, overhead irrigation system or fertirrigation systems. Control and prevents plant parasitic nematodes using several modes of action:

DIRECT ACTION:

NEMATURAL PLUS goes to work immediately the nematode and damage its cuticle. Causes nematode immobilization and desorientation, making it more difficult for them to reach plant roots.

REPELLENCY:

NEMATURAL PLUS helps repel nematodes so that they are unable to reach plant roots. Without being able to reach roots and feed, nematodes will die after they have depleted their lipid reserves.

ADVANTAGES

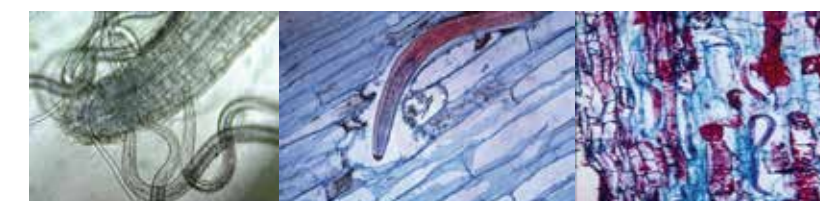
- Effective, broad spectrum nematicide.
- Sustainable and environmentally friendly.
- Can be used in Nematode Management Programs with other chemical nematicides, nutrients and cultural practices.
- Workers can re/enter the field immediately after application.
- No pre or post harvest application limitations.
- For use in conventional and organic production.

CAUTION

Nematatural Botanical is compatible with most foliar fertilizers and plant protection products.

DOSES AND APPLICATION

CROPS	L/ha	Applications (1,2 or 3)
Aubergine	10-30	Transplant - at 30 days
Banana	40-60	April - September
Citrus	20-40	After fruit curd - at 30 days - at 45 days
Cucumber	10-20	Transplant - at 30 days - at 30 days
Fruit	10-20	After fruit set - at 30 days
Garlic	10-20	Transplant - at 30 days
Grape	15-40	After flowering - at 30 days
Green bean	10-25	Beginning of crop
Lawn	10-20	After - at 21 days - at 21 days
Melon, watermelon	10-25	Transplant - at 21 days
Onion	10-20	Transplant - at 30 days
Ornamental	10-40	After cutting - at 30 days - at 30 days
Pepper	15-30	Transplant - at 30 days - at 30 days
Pineapple	40-60	February - July
Potato	10-25	Seeding - at 21 days
Strawberry	20-40	Transplanting - at 21 days
Tobacco	20-30	Transplant - at 30 days
Tomato	20-40	Transplant - at 30 days - at 30 days
Zucchini	10-20	At the beginning of crop



Belonalimus spp.

Hoplaimus galeatus

Pratylenchus spp.

QUITO CARE

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CHARACTERISTICS

QUITO CARE is a biopesticide composed of biochemicals obtained from natural sources (Chitin). Chitosan is a polymer of β -(1-4) D-glucosamine, a partially deacetylated form of quinine. It can be obtained from natural sources of chitin (crustacean shells, squid feathers, etc.) from seafood processing plants. Chitosan and its derivatives exhibit antimicrobial activity against bacteria and fungi. The bactericidal action is due to the fact that:

1. It destabilizes cell membranes, causing the loss of cell contents.
2. Inhibits the germination of phytopathogenic fungal spores.
3. It affects their growth, inducing morphological and ultrastructural alterations in the hyphae.
4. It causes a reduction in the production of toxins from plant pathogenic fungi.

QUITO CARE has fungistatic properties against both airborne and root diseases. When applied to plants, cells receive the same stimulus as if they were being attacked by a disease. This promotes the activation of the Systemic Acquired Resistance (SAR) mechanism, providing an immune response against diseases.



Fungicide, bactericide, elicitor



foliar



COMPOSITION

%w/w

Chitin (Poly-D-glucosamine) 3,0

Density: 1,01

pH: 5

DOSES AND APPLICATION

CROPS	OBJECTIVE	TIME OF APPLICATION	TYPE OF APPLICATION	Nº OF APPL.	INTERVAL BETWEEN APPL.	DOSAGE	BROTH VOLUME/SOLUTION (L/HA)
Berries and small fruits (grapes, strawberries, cane fruits, and other berries and small fruits)		From leaf development (main shoot) or fruit development	Foliar	4 - 8	2 weeks	3-5L/hl	200 - 400
Horticultural		Before planting	Foliar	1	2 weeks	3-5L/hl	200 - 400
Cereals		Before planting	Foliar	1	2 weeks	3-5L/hl	200 - 400
Spices	Plant Elicitor, an indicator of resistance to pathogenic fungi and bacteria	Before planting	Foliar	1	2 weeks	3-5L/hl	200 - 400
Animal feed crops		Before planting	Foliar	1	2 weeks	2-3L/hl	200 - 400
Cereals Seed Treatment		Before planting	Foliar	1	---	2-3L/hl	---
Sugarbeet Seed Treatment		Before planting	Bulb Treatment: 1 Dipping/Soaking	1	---	2-3L/hl	---
Bulbous ornamental plants		Germination	Foliar	1 - 8	5-7 days	3-5L/hl	200 - 400
		Foliar development – senescensio					200 - 400
Beet cultivation		Foliar development – senescensio	Foliar	1 - 8	5-7 days	3-5L/hl	200 - 400



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