Safe Plant X50

The ideal way to combat Nematodes

And how to end their problems…

In a safely way…

Safe Plant X50

An Effective Natural Compound Against all kinds of Nematodes…

Agiad for advanced agricultural technology company was established, as a result, of more than 25 years of scientific and practical experiences of working in both local and global markets. Agiad aims to contribute in the production of safe and healthy food. Our mission, vision and ambitious programs aim at applying the latest techniques and methods in the production of agricultural fertilizers, organic compounds as well as improved natural extracts.

Introduction:

Agriculture is a very important sector in Egypt and all over the world. Thus, the proper investment in this field leads to great success. While the costs of investments in this field have increased substantially which causes great risks, the agricultural investment must be reasonable, well calculated and follow the right path; in order to achieve the success and minimizing the risk factors.

Safe Plant X50

The scientific office's team has carried out an investigation; in order to determine the actual causes that could increase agricultural risks, and work on finding solutions; the solutions offered could help greatly in avoiding dilemmas such as: reducing the costs of fertilization, applying the optimum methods of combat to ensure its maximum benefits and consequently insuring maximum plant production.

Let's begin with the soil problems that are summed up as follows:

1. Nematodes infection is a serious problem that leads to grave losses in the agricultural crops.
2. Root rot is another problem that leads to serious losses due to the plant not being able to absorb the adequate nutrients; this causes plant stress in the early phases of growth and negative impact on plant production.
3. The environmental stress such as: salinity, thirst, coldness in addition to the high temperature which can affect plant too.

In order to avoid such problems, preventing their occurrence in the first place is the best and quickest way. However, in case a problem arises, it is necessary to provide the solution as soon as possible. Once the solution is applied and the problem is overcame, the plants resume growing in a healthy and strong manner, rendering an abundant production

Nematode:

Nematodes represent one of the most dangerous problems that face agriculture in Egypt; due to the serious damages the plant endures such as: weakness and atrophy of roots, weakness and minuteness of the vegetative gross, these damages might lead to diminishing the crops or the death of plant.

Nematodes's nourishment is based upon parasitism on the plant; they damage the roots, they damage the roots which hinders the ability of the plant to absorb water and nutrients from the soil. The symptoms of infection appear quickly on the plant and become clear. These symptoms exhibit on plant as dryness, stress, lack of nutrients and importantly thereof:

- Lack or termination of growth and plant dwarfism.
- Sudden wilting of the plant, particularly in hot weather and dehydration.
- Yellowing of the leaves.
- Loss of capability to endure winter's cold weather and death of the peripherals of large trees.
- The appearance of cankers on the roots (root rot) due to the wounds caused by the Nematode worms.
- The appearance of internal galls in the form of swelling on the main roots, and on the small bristles in case of the existence of root Knots' Nematode.

There are also certain types of Nematodes that carry pathogenic viruses inside their digestive system. They often transfer those viruses to the plants through injecting their saliva into plant cells.

The symptoms of Nematodes› infection are noticeable when the damaged roots not able to properly transport water and nutrients to the plant from the soil, i.e. the roots lose their main function.

Nematodes cause substantial losses in crops and agriculture, which could lead to a decrease of up to 30% in production. The global losses are 200 billion USD per annum. Examples of losses caused by Nematodes include:

- Death of annual plants, such as vegetables in the seedling phase, leading to re-plantation of new seedlings.
- Reduction in the quantity and quality of the crops. Furthermore, capability to withstand storage period is reduced too
- Suffering of the trees from general weaknesses, which might lead to the death.
- Deterioration of ornamental plants due to the injury of their flowers and leaves.

Thus, the research team of Healthy Plant French Group has carried out a study on how to minimize the numbers of Nematodes in an area where the plant roots spread, using certain natural substances that does not cause harm neither to plants nor to humans. Such substances proved to be effective in combating and limiting the Nematodes, in addition to eliminating all related problems. The research team has invented the optimal compound "Safe Plant X50".

What is a Nematode and how is it classified?

The word "Nematode" is originally derived from the two Greek words "NEMA": that means thread and "TODE": that means parallel. So, these parasitic creatures were known as roundworms. Another name that given was snake worms which was proved inaccurate due to the discovery that not all roundworms move via the serpentine method. Therefore, they were grouped under the name Nematode.

Nematodes are invertebrates (primitive), cylindrical, and mainly aquatic animals that live in salt or fresh water. In order for a Nematode to survive in the soil, the worm must be covered by a pellicle/ thin film of water in the soil, allowing the Nematode to remain living and active. Nematodes are present in water capillaries around the soil granules. Nematodes are widespread; they could exist in any environment such as where they can exist in any environment such as dry desert lands, Polar Regions, hot spring waters, and the depths of the oceans if their basic needs for survival existed.

X50 Safe Plant

Safe Plant X50 Compound:

It is an effective and fast-acting pesticide used to eliminate nematodes. It is produced by the company (Healthy Plant France).

Components:

Saponins Substance	7%
Natural extracts and oils	35%
Unsaturated Fatty acids	15%
Copper	3%
Carboxylic Acid	16%
Other items	24%

PHI ZERO

PHI ZERO

Safe Plant X50 compound is a French technology exclusively owned by Agiad for advanced agricultural technology. It is a unique compound in terms of its structure as well as its rapid and highly potent elimination of all types of Nematodes.

Safe Plant X50 is used for different varieties of crops including organic crops and export crops. It is 100% safe – the pre harvest interval is zero (PHI ZERO). It is also compatible with the regulations of the European Union and GAP Organization.

The Advantages of Safe Plant X50:

- Safe Plant X50 is used to eradicate all phases of Nematode (eliminating eggs, larval stages and whole worms).
- Has no remaining effect in fruits/ products
- It treats root rot.
- It helps the plants endure different conditions of stress.
- It assists the plants in combating fungal and insect diseases.
- It works on increasing the production, through increasing the number of flowers and enhancing the nodes.
- It reduces the usage of fertilizers and insecticide.
- It Increases the storage period of fruits.
- It guarantees a rapid onset of action and an all-inclusive action.
- It stimulates the plant to secrete natural hormones such as Auxin, Gibberellin, and Cytokinin, which helps nourishing the plant into becoming health and strong.
- It works as an antioxidant to protect plants from unfavorable environmental conditions.

Global Uses of the Combination, as Recommended by the Producing Company:

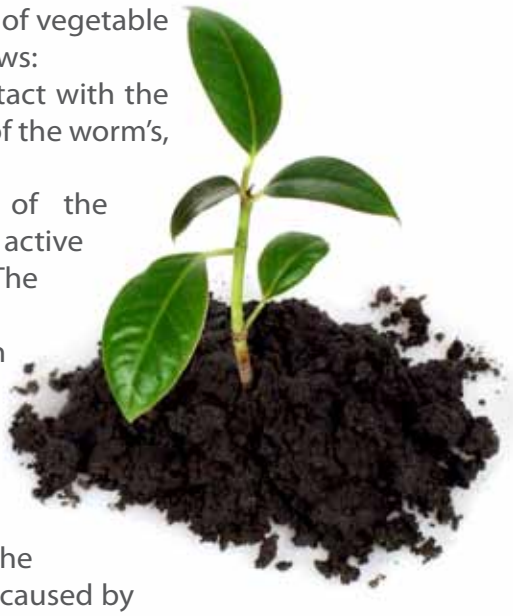
Crop	Dose per acre	Method of Addition
Grapes and fruit trees	3 – 5 liters, according to the severity of the infection	Mid-march then a dose after 15 days, then another dose after the end of the harvest.
Strawberry's seedling	3 liters	Twice with an interlude of 15 days
Strawberry	2.5 liters	A quantity of 2.5 liters per acre is given at the beginning of Mulch/ covering process, another dose is applied after 21 days with the quantity of 2.5 liters per acre. The doses shall be repeated, according to the severity of the infection.
Vegetables in greenhouses and in open area	3 – 5 liters (according to the severity of infection)	A dose is given 3 days after planting the seedlings. The dose is repeated after 15 days. Then, it is repeated monthly.
Watermelon and cantaloupe	3 liters	A dose is given after one month of planting. A supplementary dose is provided 21 days later with the quantity of 3 liters per acre, as per the severity of the infection.
Banana	Supplant	First dose of 5 liters is given, and then a dose of 3 liters is given after 15 days within the month of April. Dosage repetition is according to the severity of the infection.
	Mother seedling	First dose of 5 liters is given, and then a dose of 3 liters is given after 15 days within the month of May. Dosage repetition is according to the severity of the infection.
Sugar beet	3 liters/ Acre	A dose is given one month after planting. Then, the dose is repeated after 15 days.
Peanuts	3 liters/ Acre	A dose is given one month after planting. Then, the dose is repeated after 15 days.
Tomatoes	3 liters/ Acre	A dose is given one month after planting. Then, the dose is repeated after 15 days.
Potatoes	3 liters/ Acre	A dose is given after ridging (incubation) with the quantity of 3 liters per acre. Another supplementary dose is given with the quantity of 3 liters per acre after 21 days, as per the severity.
Citrus fruits	5 liters/ Acre	The dose is repeated according to the severity of infection
Peaches	3 liters/ Acre	The dose is given during growth season, then it is repeated according to the severity of the infection
Colorful pepper	3 liters/ Acre	When the infection arises
Cucumber	3 liters/ Acre	A dose of 3 liters/ Acre is given after a week of planting. Then, it is repeated each 15 days, according to the severity of the infection.

Pre-Harvest Interval (Does not exist) = Zero

Safe Plant X50 works on:

- Combating Nematodes and avoiding infection by elevating the defensive immunity and the systemic resistance acquired throughout the plant's life cycle and during the various stages of plant growth.
- Resisting environmental stress and treating root rot to provide roots with high physiological potential capable of feeding the plant.
- Forming strong roots for proper absorption of fertilizers and nutrients from the soil which is reflected on the plant and its productivity, and reduces the usage of pesticides that harm humans and causes stress to plants.
- Promoting the plant's production and flowering and increasing the storage period of fruits through healthy proper production. The healthy production is free from any adverse effects on humans, plants and the environment because it is composed of natural materials. Its fast-acting effect can be seen on the plant after a few days of delivering the treatment.

Safe Plant X50's Mechanism of Action:



- Safe Plant X50 is a natural organic compound consisting of vegetable oil extracts and unsaturated fatty acids that work as follows:

1. Deadly effect: occurs once Safe Plant X50 comes in contact with the nematode worms as it works on destroying the cell wall of the worm's, which results in death.
2. Feeding inhibition effect: preventing nourishment of the Nematodes that happens due to presence of the active constituent in the solid and inside and around the roots. The Nematode ceases its nourishment on the roots and dies.
3. Hormonal effect: causing a disorder in the growth hormone. The process of larval dissociation ceases.
4. Life cycle effect: penetrating the egg bags of Nematodes which results in coagulation of eggs.

- A specific concentration of the metal copper is added to the composition of Safe Plant X50. This allows for the treatment of cankers and rot that resulted from wounds caused by the infection.
- The combination includes an organic carboxylic acids acting as natural antioxidants, which protect the plant from harmful environmental conditions.

Safe Plant X50's Instructions and Method of Application:

In order for the treatment to be effective and to ensure the achievement of the desired outcome, the instructions and timings should be followed accurately.

- Clean the irrigation system and ensure its proper and continuous working.
- Ensure the application of an accurate and acceptable fertilization process.
- Measuring EC and soil salinity.
- Treat at temperature not less than 15 and not more than 30 degrees. It is preferred to add the dose in the early morning or before sunset. It is preferred not to add the dose where high temperature is occurred.
- It is recommended that the soil's wetness to be not less than 70% before the application.
- The plant shall be hovered over from 24 to 48 hours after the dose is given.
- Do not fertilize on the day of treatment.
- Maintain the pH of the soil close to neutral by adding acids to the water irrigation. This will promote the efficiency of root absorption of water, fertilized elements and pesticides.
- Continue getting rid of harmful grass because they lead to a substantial loss of great quantities of water and fertilizers. Harmful grass hosts a large number of insect pests. It also handicaps the growth of roots of the main crop, particularly vegetable crops.
- Use treated organic fertilizers to ensure that they are free from the seeds of Harmful grass and Nematodes.

Usage and Dosage:

- The dosage is 3 to 5 liters /acre depending on the severity of infection for most plants. Then, the dose is repeated after 15 days.
- Bananas have special doses depending on the severity of infection. The first dose for bananas is 5 liters minimum.
- Safe Plant X50 is added to irrigation water through fertilization, after washing the irrigation system well in the last 15 minutes of irrigation period. Then followed by another 15 minutes of irrigation with water only to ensure the compound has reached the target areas. Irrigation should not be performed after 24 hours to 48 hours of applying the dose.
- In the case of irrigation by flooding, it is preferred to add the compound one day after irrigation on the surface of the soil. At that time the soil is saturated and the compound is added by using dorsal sprayers or a spray motor.
- Safe Plant is used through the method of ground addition (ground spread), drip irrigation and upper irrigation systems.
- Ensure that the product is mixed thoroughly with water.

Critical Numbers and Limits of Certain Species:

The table displays the effect of some nematode species on crops (250 larvae / 250 g soil).

The type of Nematode	Weak effect	Intermediate Effect	Danger Phase	Very Dangerous
Root-knot Nematode	25 – 100	100 – 200	200 – 375	More than 375
Pratylenchus Spp (Lesion Nematodes)	10 – 25	25 – 100	100 – 200	More than 200
Tylenchulus semipenetrans	25 – 100	100 – 200	200 – 375	More than 375
Xiphinema (Dagger Nematodes)	10 – 25	25 – 100	100 – 150	More than 150
Helicotylenchus Spp	10 – 200	200 – 375	375 – 750	More than 750
Hoplolaimus spp	10 – 50	50 – 150	150 – 300	More than 300
Tylenchorhynchus spp.	10 – 25	25 – 100	100 – 200	More than 200
Ring Nematode	10 – 200	200 – 375	375 – 750	More than 750

The Most Important Economic Crops and their Parasitized Nematode:

Grapes

Root-knot Nematodes

The appearance of knots on the roots – yellowing the leaves – wilting and dwarfism – the deterioration of crops.

- Any symptoms appearing in the soil at the beginning of the season is deemed dangerous, and treatment is advised.
- The infection appears from the beginning of the small seedling to the fruited plant.

Strawberry

Root-knot Nematodes

The infection occurs at the beginning of November.

Bananas

Root-knot Nematodes

Knots appear on the roots –yellowing the leaves - plant wilting and dwarfism – crop's reduction – the root gross may be rotten. Any symptoms appearing in the soil at the beginning of the season are deemed dangerous. It is advised to treat the problem quickly since bananas are sensitive to infections.

Sugar Beet

Lesion Nematodes

The presence of brown colored cankers on the secondary roots after planting directly and after formation of the roots' gross.

Peanuts

Root-knot Nematodes

The appearance of small swellings on the secondary roots – the green gross to yellow and weak. The infection occurs when forming the roots' gross.

Tomatoes

Root-knot Nematodes

Knots appear on the roots – yellowing of the leaves – plant wilting and dwarfism – deterioration of crops.

Potatoes

Lesion Nematodes

The presence of brown colored ulcers on the secondary roots appear after one month of planting and the formation of roots' gross.

Citrus:

Slow Deterioration

The death of terminal branches – root gross's dissociation – the easiness of separating cortex area in the roots from the vascular bundles – the adhesion of soil granules to the feeding root bristles – the symptoms do not appear on the citrus trees except after several years, in the form of the death of ends from outside to inside.

Peaches

Lesion Nematodes

The infection appears throughout the growing season, particularly at the beginning of the growing season of Peaches' roots. The roots' knot appears – yellowing of the crops– the crops are deteriorated.
The infection appears from the beginning of the small seedling to the fruited plant.

Colorful Pepper

Root-knot Nematodes

The infection occurs 35 days after the implanting.

Cucumber

Root-knot Nematodes

Begins to appear in mid-November.

Saving and Storage Methods:

Store in a cool, dry place in a closed area. The package must be kept away from extreme heat.

Warnings:

- Keep out of the reach of children.
- Avoid eating, drinking or smoking while dealing with Safe Plant X50.
- Wear work clothes, gloves, masks, and eye goggles.
- Do not use or store near food or drinks.