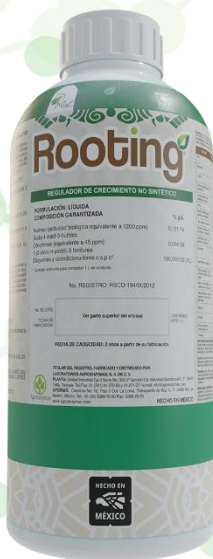


Technical Data Sheet



Rooting[®]



GENERAL INFORMATION

Category

Growth regulator

Chemical Group

Not applicable

Formulation

Liquid

Formulation Guarantee

Ingredients

Content % w/v

Auxins (1200 ppm)

4-Indole-3-butyric acid ----- 0.12174

Cytokinins (45 ppm)

1-(2-chloro-4-pyridyl)-3-phenylurea ----- 0.00456

Diluents and conditioners c.s.p.c*-----100.00 (1L)

Mode of Action

Rooting[®] is a bioregulator containing a high concentration of auxins mixed with cytokinins, enhanced with NLT (NANOLIQUID TECHNOLOGY), generating biological responses in existing roots to form new lateral roots and promote the growth of the entire root system, increasing the area of contact between the soil and the roots. Thanks to its formulation technology, it increases the roots' defenses and tolerance to adverse soil conditions.

Manufacturer / Formulator / Distributor

IQ Chemicals & Labs SA de CV / Agroenzymas Mx

Antidote

There is no specific antidote. Treatment is symptomatic and supportive.

Registration

RSCO-194/IX/2012

Technical Data Sheet



MODE OF ACTION AND EFFICACY

Rooting® has the following characteristics and mode of action:

- **Biological effectiveness of its compounds.** The active ingredients contained in **Rooting®** are the most bioactive on the market, so when they come into contact with the roots, they induce the generation of new roots and stimulate their growth. Once the product is applied, the components quickly reach the sites of action of the roots to signal the generation of a number of roots that can recover the loss caused by several factors (age of the crop, pests and diseases, adverse soil conditions). **Rooting®** includes elicitor compounds and natural components dedicated to strengthening crops, triggering the formation of defense compounds that help the plant tolerate adverse abiotic and biotic conditions.
- **NLT (NANOLIQUID TECHNOLOGY).** A formulation based on nanoparticles (30-100 nm) designed and added to **Rooting®** that encapsulates, protects, increases penetration via endocytosis, and releases a greater amount of active ingredients into the plant in a controlled manner, increasing the speed of response, improving and enhancing its effect, and generating a more sustained response.
- **High stability of its compounds.** The phytohormones (auxins and cytokinins) contained in **Rooting®** are found in the right concentrations, so they have constant stability and thus stimulate the generation of roots suitable for crop growth.

APPLICATION METHODS

For the application of **Rooting®**, it is critical to have a root system that is active with growth points at the time of application. **Rooting®** is a 100% water-soluble liquid product and can be applied in different ways:

- Pressurized sprinkler system. Add the material in the last quarter of irrigation so that it remains closest to the roots.
- Drip or micro-sprinkler systems. Add the material in the third quarter of irrigation, ensuring that the area where the emerging root is located is adequately covered.
- Located at the base of the plant. Apply the material in the amount of water necessary to wet the area, preferably after watering.
- Band sprinkling, accompanied by watering to incorporate the material.

In either case, fill the container to 50% of its capacity, add the required amount of material, and fill it completely with water.

SPECIAL PRECAUTIONS

Due to its stable molecules, **Rooting®** does not cause problems in soils and waters of different qualities. It is not affected by pH, conductivity, or excess elements. This also makes it fully compatible with soil conditioners, fertilizers, or other compounds that may modify the injection of water or soil conditions.

Do not apply the material if heavy rain is forecast for the next 4 hours.

If applying the material via an irrigation system, add it in the third quarter of irrigation so that the material can cover as much as possible. The material needs approximately 3 hours to enter the root tissue and stimulate root growth, as well as the formation of new roots.

GENERAL RECOMMENDATIONS

Rooting® can be applied to various crops and conditions; however, we suggest the following recommendations:

- **Phenological stage of application.** **Rooting®** applications should begin when the crop naturally shows root activity (however minimal), at which point there are receptors for the phytohormones contained in **Rooting®**, ensuring its effectiveness.
- **Managed dosage.** It is recommended to use low doses if the amount of root in the crop is considered sufficient and only maintenance is required, or high doses if the amount of root in the crop is low and needs to be increased. Low doses are recommended if the amount of root present is considered sufficient and the aim is simply to maintain it, or high doses if the amount of root in the crop is low and needs to be increased.
- **Application conditions.** Do not apply **Rooting®** if heavy rain is forecast in the 3 hours following application. The material needs approximately 3 hours to enter the root tissue and stimulate root growth and the formation of new roots.

EFFECTS ON CROPS

Rooting® formulated with NLT (NANO LIQUID TECHNOLOGY). When applied to the root system of plants by any means (irrigation system, drenching, banding, etc.), it has the following effects:

- **Root development.** The phytohormones and other reactive compounds in **Rooting®** generate biological responses in existing roots to form new lateral roots and promote the growth of the entire root system, thereby increasing the area of contact between the soil and the roots.
- **Increased nutrient absorption.** Greater root contact area with the soil and, therefore, greater capacity to contact nutrients, due to the number of new roots generated and their growth.
- **Increased tolerance to adverse conditions.** The replacement and increase of the root system stimulates the formation of the plant's own phytohormones, which stimulate its defense compounds and the elicitor compounds it contains, making the plant more tolerant to adverse soil conditions.
- **Tolerance to pathogen attack.** Increases tolerance to root pathogen attack by stimulating compounds that repel these attacks.

Rooting® It is a liquid formulation, completely soluble in water and compatible with currently registered agrochemicals, including soluble fertilizers, organic acids, soil amendments, microorganisms, soil improvers, insecticides, fungicides, bactericides, etc., thereby optimizing application costs.

If the characteristics of the product to be mixed are unknown, it is recommended to perform a small stability test.

Rooting® is not toxic to crops and recommended doses in this data sheet.

Do not contaminate water, food, or animal feed when storing or handling the product. Keep it in its original container.

- Do not contaminate water, food, or animal feed when storing or handling the product. Keep it in its original container.
- Storage: Keep in a cool place.
- Product disposal: if the material is not used in its entirety, keep it in its original container until it is used.
- Do not remove the label or repackage the product.

Container disposal: Do not reuse the container. Do not refill the container. Take to collection centers. Triple wash as follows: Empty the remaining contents into a waste tank for 10 seconds until the container begins to drip. Fill the container 1/4 full, with water and shake. Shake for 10 seconds. Pour the rinse into the waste container, repeat the operation from side to side, and repeat a third time from top to bottom.

CROP	DOSE L/ha	SEASON AND APPLICATION METHOD
Grapevine	1.0-3.0	Apply once root emission begins at the start of the cycle and after harvest; apply to the soil in strips under the row with 500-600 L of water. It can be applied via a drip irrigation system.
Apple, pear, quince, peach, plum, cherry, and almonds	1.0-5.0	Apply once root emission begins at the start of the cycle and after harvest; adjust the dose according to the need to stimulate roots. Use enough water to cover the existing root (in band, drench, or irrigation system).
Avocado	1.0-5.0	Apply once root emission begins at the start of the rainy season or during the known stages of root growth depending on the location and season. Apply to the soil in a band around the tree line, using a volume of water that allows for adequate penetration.
Citrus fruits (grapefruit, lemon, and orange)	1.0-3.0	15 to 30 days after transplanting new plantations. Apply once root growth begins at the start of the rainy season or during the known stages of root growth depending on the location and season. <<<<<<<<<<<<Use low doses on small trees and high doses on larger trees with high demand or in known situations of root problems. Apply to the soil in a band or drench the tree line, using a volume of water that allows adequate penetration or using a pressurized irrigation system.
Mango and pistachio	1.0-3.0	
Guava	0.5 -2.0	
Coffee	1.0 -3.0	
Tomatoes and chili peppers, eggplant, and tobacco.	1.0-2.0	Apply 12 to 15 days after transplanting or emergence, repeat every two weeks, start with low doses and increase to higher doses after flowering.
Cucumbers, melons, watermelons, pumpkins, and zucchini.	0.5-1.0	For plants with a specific growth cycle (determinate or floor tomatoes, pumpkins, watermelons, etc.), apply two or three times after flowering at the indicated intervals. For plants with indeterminate growth (stiff tomatoes, bell peppers, cucumbers, etc.), apply continuously at the indicated intervals throughout the production period. Apply to the base of the plant via drench, targeted applications, or pressurized irrigation system.
Potatoes	1.0	Apply at seeding time by sprinkling the seed at the bottom of the furrow or 15 days after emergence by sprinkling at the base of the plant, using a drench or irrigation system.
Broccoli, cabbage, cauliflower, Brussels sprouts, and Chinese broccoli, lettuce, sunflower, safflower, chicory, and endive.	1.0	Apply 8-15 days after transplanting or emergence; apply via irrigation system or by spraying or drenching the base of the plant.

Technical Data Sheet



Garlic, onion, and chives.	0.5 –1.0	Apply 15 days after transplanting or emergence, or when two true leaves appear; spray in a band or drench next to the plant or use a pressurized irrigation system.
Beans, broad beans, lentils, chickpeas, soybeans, peas, tamarind, jicama, alfalfa, peanuts, and green beans.	1.0	Apply 15-21 days after emergence by band spraying next to the row of plants, prior to the first irrigation or using a sprinkler irrigation system.
Wheat, barley, oats, corn, rice, sorghum, millet, and sugarcane.	1.0	Apply 15-21 days after emergence by band spraying next to the row of plants, prior to the first rolling irrigation or using the sprinkler irrigation system.
Sweet potatoes.	1.0	Apply 8 to 15 days after transplanting or emergence, apply by spraying or drenching or by pressurized irrigation.
Walnut trees.	1.0-2.0	Apply once root growth has begun. Adjust the dose according to the need to stimulate root growth. Use enough water to cover the existing roots (using a band, drench, or irrigation system).
Raspberries.	2.0-3.0	Renew canes 20 days after pruning and repeat every 30 days.
Blackberry	3.0-5.0	Established growing plantations: when root emission begins, repeat every 30 days.
Blueberry	3.0-5.0	Apply to the base of the plants by spraying or drenching or using a pressurized irrigation system; dose according to the degree of root formation required.
Strawberries	1.0-2.0	Apply 15 days after transplanting and repeat every 15 days, spraying or drenching the base of the plant or using a pressurized irrigation system.
Pineapple	3.0-5.0	Apply for the first time 120 days after transplanting, apply a second time before induction, and repeat when the fruit flowers have dried. Apply by spraying the plant with plenty of water or using a pressurized irrigation system.
Roses	3.0-5.0	Apply after transplanting when the plant takes root, apply to the base of the plant by spraying or drenching, or through the irrigation system; for cut flowers, apply 15 days after a heavy harvest or monthly to recover plants.
Poinsettia and gerbera.	1.0 –3.0	
Plantain and banana	1.0-3.0	Every 3 months after removing the sprouts, apply between the mother plant and the sprouts, either by spraying or drenching or using a pressurized irrigation system.