JUNIperus®

GENERAL INFORMATION

Category	Inorganic fertilizer
Chemical Group	Not applicable
Formulation	Liquid
Formulation Guarantee	**Ingredients** Content % w/v Metallic magnesium ----------3.96 % Metallic iron ---------- 2.63% Metallic zinc ---------- 1.27 % Sulfur ----------7.77% **Total 100,00 %**
Mode of Action	JUNIperus® is an inorganic foliar fertilizer formulated with **NLT (Nano Liquid Technology) and StressOff® (Brassinosteroid);** composed of Magnesium, Iron, Zinc and Sulfur, derived from completely soluble and assimilable sources by the plant, in the appropriate concentrations to increase photosynthesis, antioxidant enzymes and that by Stress Off technology quickly increases the defense compounds of plants before adverse conditions and also by NLT (Nano Liquid Technology) enhances its effect.
Manufacturer / Formulator / Distributor	IQ Chemicals & Labs SA de CV / Agroenzymas Mx
Antidote	There is no specific antidote. Treatment is symptomatic and supportive.
Registration	**RSCO-235/V/24**

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Agroenzymas

MODE OF ACTION AND EFFICACY

Due to its **NLT (Nanoliquid Technology),** the elements (Mg, Fe, Zn, and S) and compounds in **JUNIperus®** are quickly perceived by plant receptors, which translate the message to activate the genes that produce plant defenses against various types of stress. The effectiveness of **JUNIperus®** is due to the similarity of its components to those used by the plant to activate its defenses, which leads to greater tolerance of adverse conditions once the defenses are activated 2 or 3 days after application.

JUNIperus® has characteristics within its components that make it easily assimilated and received by the plant:

- **Highly assimilable essential elements.** Its sources are highly assimilable and in the right concentrations for rapid absorption, assimilation, and stimulation of various plant metabolic processes.
- **Synergistic effects of its components.** The elements and elicitors contained in **JUNIperus®** are in the right concentrations to have a synergy that harmoniously stimulates the photosynthetic process, defense compounds against adverse conditions, and vegetative growth.
- **Solubility.** The raw materials are the most soluble on the market and retain their original contents in a highly assimilable form.
- **Conditioners and diluents.** The inert ingredients in **JUNIperus®** ensure its long-term stability and improve its penetration into the plant.
- **StressOff® technology.** The **JUNIperus®** manufacturing process is based on StressOff technology, which consists of elicitor compounds that stimulate defense compounds in plants, making them more tolerant to adverse conditions.
- **NLT (NANO LIQUID TECHNOLOGY).** A nanoparticle-based formulation (30-100 nm) designed and added to **JUNIperus®** that encapsulates, protects, increases penetration via endocytosis, and releases a greater amount of active ingredients into the plant in a controlled manner, increasing the response speed, improving and enhancing its effect, and generating a more sustained response.

APPLICATION METHODS

JUNIperus® is designed for foliar applications.

- Although **JUNIperus®** easily penetrates crops, it is recommended to add a penetrant or adhesive to the spray solution to ensure adequate coverage of the compounds.
- • For preparation, it is recommended to dilute the indicated dose in a container with water, fill 50% of the spray container, add **JUNIperus®**, shake, and then fill the container to 100% capacity.

SPECIAL PRECAUTIONS

As it is rich in zinc and iron, do not mix small amounts of water with products rich in calcium or phosphorus. Use enough water to prevent precipitation.

GENERAL RECOMMENDATIONS

The effectiveness of **JUNIperus®** can be increased by considering the following points:

Application stage. It is recommended to apply **JUNIperus®** considering the type of crop:

- Established seedlings in the field (vegetables, flowers, etc.). It is recommended to make the first application 7 days after transplanting and repeat every 15 days throughout the crop cycle.
- Perennial plants: apply **JUNIperus®** to established crops once vegetative growth has begun and repeat every 15-20 days.

Frequency of applications. There are two ways to apply **JUNIperus®**:

- To stimulate vegetative growth and tolerance to adverse conditions. Apply at the beginning of the vegetative cycle and subsequently every 15-20 days.

Before or after adverse conditions. Apply every 10-15 days until the adverse conditions have passed.

Managed dosage. Apply low doses in the early stages of cultivation and high doses in the adult stages. Apply high doses over long periods (every 15-20 days) under normal conditions or short periods (every 10-15 days) under previous or subsequent conditions.

EFFECTS ON CROPS

Thanks to its components, **JUNIperus®** has the following effects on annual and perennial plants:

- **Increase in chlorophyll content.** The Mg source in **JUNIperus®** quickly and effectively ensures that the element is integrated into chlorophyll formation, thereby helping to supply the cells and organs responsible for collecting solar radiation, increasing the capacity to assimilate radiation, and reducing stress caused by this factor while increasing photosynthesis.
- **Increased photosynthesis.** In addition to Mg, **JUNIperus®** provides the necessary amount of Zn to maintain an adequate level of this element's functions within the photosynthesis process in C4 and CAM plants and, to a lesser extent, in C3 plants. This is because Zn is a component of the enzyme carbonic anhydrase, which helps maintain CO2 concentration at fixation sites so that other enzymes (PEP and RUBISCO) can maintain a high rate of carboxylation and thus adequate photosynthesis.
- **Increased stress tolerance. JUNIperus®** stimulates the action of genes that induce stress tolerance compounds. The brassinosteroid content present in StressOff® technology activates genes that encode responses to adverse abiotic factors (such as water deficit, cold, heat, salinity, among others), increasing tolerance to these factors. Since they mediate stress tolerance responses by modulating a specific set of genes, they control the transcription of these genes, which encode proteins and enzymes whose presence is essential for overcoming stress, mitigating or eliminating reactive oxygen species (ROS), modulating the antioxidant defense machinery, and thus improving the defense response.

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- **Increased vegetative and reproductive development.** Due to stimulation of the photosynthetic system, and also because it is formulated with NLT (Nano Liquid Technology) which increases the amount of active ingredient molecules that are integrated into the plant cell through a process called endocytosis, causing the compounds in **JUNIperus®** to be potentiated; the vegetative and reproductive growth of crops benefits immediately, thereby increasing biomass gain and yield.

COMPATIBILITY

JUNIperus® has demonstrated absolute compatibility with other agrochemicals with current registration, as well as increasing the effectiveness of fertilizers, biostimulants, and bioregulators.

It is recommended not to mix in small volumes of water with products with high calcium, phosphorus, and/or copper content. If the origin of the products is unknown, it is recommended to perform a quick compatibility test in small proportions.

PHYTOTOXICITY AND RESIDUES

JUNIperus® is not phytotoxic at the recommended doses and crops.

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.

OUR VALUE OFFER

Say goodbye to plant stress naturally.
Increase in photosynthesis and plant defense compounds.

Table of recommendations

CROP	DOSE	METHOD AND TIME OF APPLICATION
Avocado and mango	300 to 500 ml / 100 L of water	Start applications on new sprouts, repeat during flowering and on fruits 5 mm in diameter. Repeat every 20 days to increase plant tolerance to adverse factors. If the timing of adverse conditions is known, apply 3 days before and 3 days after stress to help the plant recover.
Citrus fruits (Persian lime, orange, grapefruit, tangerine, Mexican lemon)	300 to 1000 ml / 100 L of water	Apply in the nursery at the start of bag transplanting. During flowering, repeat at the formation of the first fruits in established orchards and when fruit is filling. Subsequently, apply every 15-20 days to increase plant tolerance to adverse factors and stimulate vegetative and reproductive growth.
Table grapes, apples, peaches, and walnuts	300 to 500 ml / 100 L of water	Start applications on new sprout growth, repeat before flowering and on fruit formation. Subsequently, every 20 days throughout the cycle, including 2 to 3 applications after harvest. Under adverse conditions, apply consistently every 15-20 days to increase plant tolerance to stress factors.
Tomatoes and chili peppers	1.5 to 3.0 L/ha	Apply 7 days prior to transplanting and 7 days after transplanting. Subsequently, apply during flowering. Subsequently, to stimulate the plant's defenses, apply every 15 days to increase tolerance to adverse environmental factors.
Pumpkin, cucumber, melon, and watermelon	1.5 to 3.0 L/ha	Apply 4 days prior to transplanting and 4 days after transplanting. Then apply during flowering. Subsequently, to stimulate the plant's defenses, apply every 15 days to increase tolerance to adverse environmental factors.
Potato	1.5 to 3.0 L/ha	Apply at the time of sprouting, repeat during stolon development, tuberization, and tuber development. To stimulate the plant's defenses, apply every 15 days to increase tolerance to adverse environmental factors.
Cotton	1.5 to 3.0 L/ha	Start applications with two true leaves, repeat at flowering and when the delimitation of the plot segment occurs. Subsequently, to stimulate the plant's defenses, apply every 15 days to increase tolerance to adverse environmental factors.

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Agave	**1.0-2.0 L/ha**	**February: At the end of the month to destress and to activate from the winter season** **June–August: to keep mechanisms active in adverse conditions (rain)** **November–December: to protect the plant from adverse weather conditions (cold)**
Pineapple	1.5 to 3.0 L/ha	Apply at the beginning and during vegetative growth. Fifteen days after flower induction; repeat three to four weeks later. Apply every 15 days prior to stressful conditions, high or low temperatures
Papaya	1.5 to 3.0 L/ha	Apply 15 to 20 days after transplanting, repeat during flowering and fruiting. Apply every 15 days prior to stressful conditions, high or low temperatures
Blackberry, raspberry, blueberry	1.0 L/ha	Weekly applications for initial sprouts after pruning, 3 to 4 applications During fruiting, apply weekly Sobre el crecimiento vegetativo realice aplicaciones semanales
Strawberry	1.0-2.0 L/ha	Apply 7 days prior to transplanting and 7 days after transplanting, then apply again at the beginning of flowering. Subsequently, to stimulate the plant's defenses and improve fruit quality, apply every 15 days to increase tolerance to adverse environmental factors.
Banana	250 to 350 ml/ha	Apply during vegetative and reproductive development to increase plant defenses against adverse conditions every 7-15 days.
Leafy vegetables (lettuce, cabbage, etc.)	1.5 to 3.0 L/ha	Start applications with four true leaves. Subsequently, to stimulate the plant's defenses, apply every 15 days to increase tolerance to adverse environmental factors.
Onion and chives	1.5 to 3.0 L/ha	Start applications with four true leaves. Subsequently, to stimulate the plant's defenses, apply every 15 days to increase tolerance to adverse environmental factors.
Asparagus	1.5 to 3.0 L/ha	Start applications 15 days after plant development, following harvest. Subsequently, to stimulate the plant's defenses, apply every 15 days to increase tolerance to adverse environmental factors.
Beans, soybeans, broad beans, chickpeas	1.5 to 3.0 L/ha	Start applications with two true sheets Repeat at the time of flowering and 20 days later.
Grapes for wine	300 to 500 ml / 100 L of water	First appearance of new sprouts, repeat before flowering and at the beginning of fruit formation. Subsequently, every 20 days throughout the cycle, including 2 to 3 applications after harvest. Under adverse conditions, apply consistently every 15-20 days to increase plant tolerance to stress factors.
Wheat, oats, barley, sorghum	1.0 to 3.0 L/ha	Apply during tillering, repeat during heading, and later during grain filling.
Corn	1.0 L / 200 L of water	Apply at stage V4-V9 (4th to 9th leaf) Repeat 30 days after the first application Apply at stage V10-R1 (appearance of the female organ)

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