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NANO SILICON

MINERAL FERTILIZERS,
BIOLOGICALLY ACTIVE

SILICON

«No organism can exist without silicon, it emerges in the universe as an element of exceptional significance»

Academician V.I. Vernadskiy

The unique fertilizer based on biologically active silicon under the trademark «NanoSilicon (NanoKremniy) mineral fertilizer with mi-croelements».

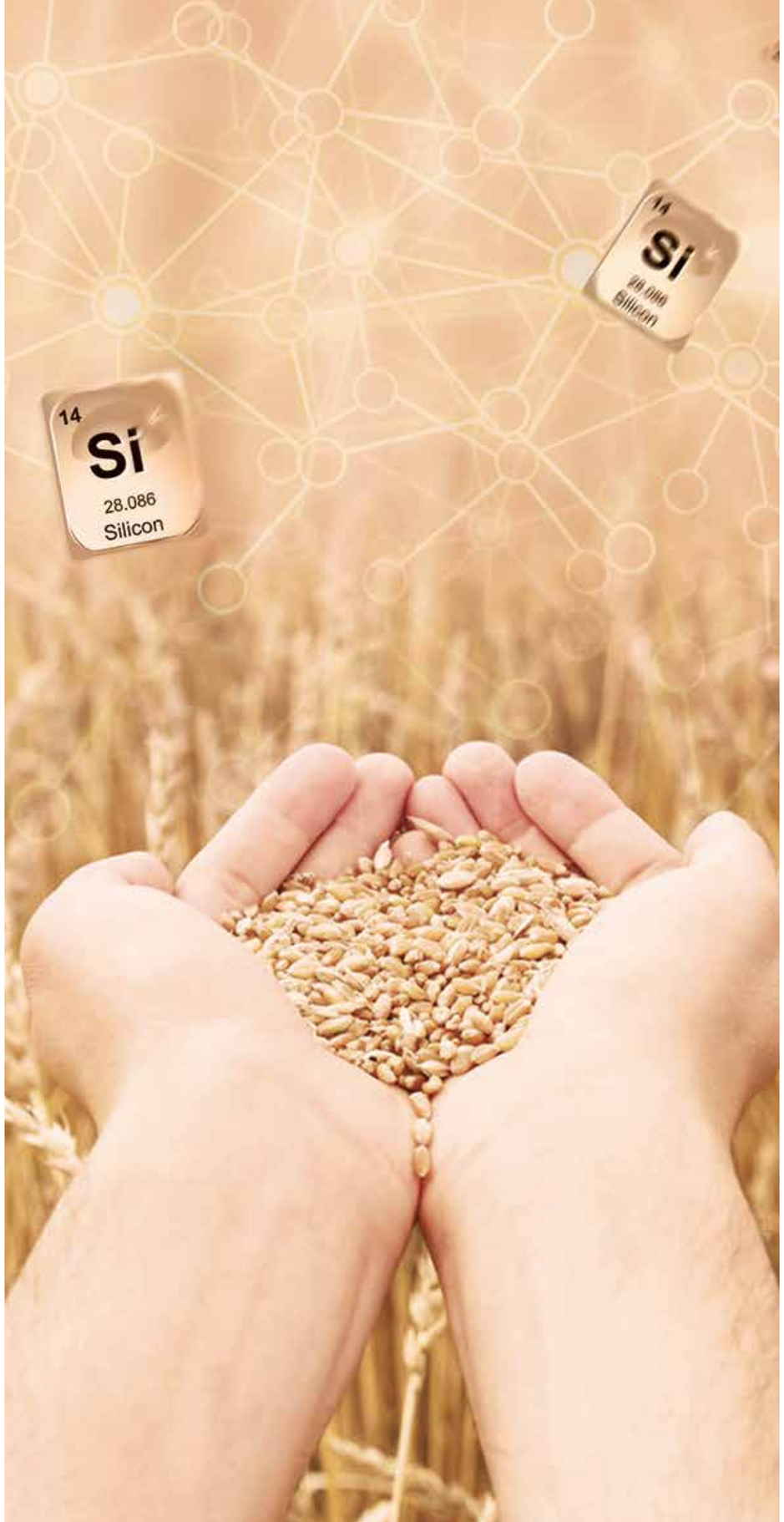
The product which is an excellent example of the collaboration of science and exist-ent manufacturers of agricultural products.

Within five years numerous laboratory and field tests have been per-formed, and the fertilizer has been included by of the EU in the list of mineral fertilizers permitted for use in EU. Federal public service Public health, food chain and environment

EXEMPTION EM099.Q

Issued in accordance with article 5 - §1 of the Royal Decree of January 28, 2013 relating to the placing on the market and use of fertilizers, soil conditioners and growing substrates.. The products, as an innovative technology, are protected in the «Know-How» mode.

Silicon is the second most common element of the earth's crust and soil after oxygen. However, the greater part of silicon is in the form of insoluble substances and is inaccessible to the plant. This is the major problem, but it was solved by the specialists of our company, they used innovative technologies to turn silicon into an incredibly fine dust, the size of the particles in which is so small that they easily penetrate the cell membrane, which allows it to directly absorb biologically active silicon.



NANO SILICON

Silicon in nature and in plants. The unique character of silicon.

Silicon performs a surprisingly large number of functions in plant life, and is especially important in stressful conditions. The function of silicon can be compared to the function of secondary organic metabolites that perform protective functions in plants.

Silicon is accumulated by plants in quantities that often exceed the amount of absorption of the main macronutrients (N, P, K). The range of silicon concentrations in plants is much wider than that of other nutrients.

Silicon is distributed very unevenly in plants. Research has shown that plants can absorb low-molecular-weight silicic acids and their anions not only through the root system, but also through the surface of leaves, if sprayed with silicon-containing solutions. It is important to note that the absorption of silicon by leaves is about 30-40%, whereas through the root system – it does not exceed 1-5.

Silicon in the leaves is deposited as a layer 2, 5mkm thick in the area directly below the thin (0, 1mkm) cuticle layer, forming a double cuticle-silicon protective layer on the leaf surface. In addition to that silicon accumulation also occurs in the epidermis and the conductive tissues of the stem, leaves, roots, and shell of grains. These accumulations of silicon allow plants to survive under abiotic and biotic stresses.

Transport of silicon within plants.

Research results indicate that plants have a mechanism that provides active and rapid redistribution of silicon in plant tissues. In that case, Si is transferred to tissues that are more susceptible to stress or disease.

Functions of silicon in the plant.

The positive role of silicon in stimulating the growth and development of many plants is generally recognized - silicon has a significant impact on their growth and development, it increases productivity and improves product quality. At the same time, the positive effect of silicon is especially noticeable in plants under stressful conditions.

Silicon gives plants mechanical strength, strengthens the walls of epidermal cells and prevents lodging, providing rigidity of various plant organs. It is proved that silicon in optimal doses contributes to a better exchange of nitrogen and phosphorus in tissues, increases the consumption of boron and a number of other elements, and reduces the toxicity of excess amounts of heavy metals. Optimization of silicon nutrition of plants results in an increase in the leaf area and creates favorable conditions for biosynthesis of plastid pigments. In such conditions plants form stronger cell walls, which reduces the risk of lodging crops, as well as well as their damage by diseases and pests.

One of the important functions of active forms of silicon is to stimulate the development of the root system. The research in cereal, citrus, vegetable cultivars and forage grasses have shown that when improving the silicon nutrition of plants the number of secondary and tertiary rootlets increases by 20-100% and more. Lack of silicon nutrition is one of the limiting factors in the development of the root system of plants. It has been established that optimization of silicon nutrition increases the efficiency of photosynthesis and the activity of the root system.

The function of silicon in the formation of stress resistance.

The function of silicon in plants is, primarily in protecting against adverse environmental influences, both biotic and abiotic.

When grown in artificial favorable conditions plants practically do not need silicon. But entering the real world dramatically changes the plant's environment: pests, pathogenic fungi, drought and heat are just some of the dangers surrounding plants under field conditions.

Silicon performs its functions in two ways: by polymerizing silicic acid, what leads to the formation of amorphous hydrated silica, and by playing a significant part in the formation of organic protective compounds.

- Photosynthesis improvement
  - Increased stress resistance
    - Resistance to biotic stresses
      - Diseases — for example, powdery mildew
      - Pests — for example, aphides
    - Countering abiotic stresses
      - Chemical stress
        - Nutrition imbalance — for example, excess of N, deficit of P
        - Intoxication with metals — for example, Al, Cd, As
        - Salinity stress
      - Physical stress
        - Water stress — drought resistance
        - Temperature stress — heat and frost resistance
        - Radiation stress — resistance to UV radiation
        - Resistance to lodging

Plants that accumulate silicon well stand in a better position, as this element increases resistance to stress. If we want to increase a plant's stress tolerance we need to provide plants with silicon, regardless of whether these plants are monocotyledonous or dicotyledonous. The significance of silicon is especially evident in rice: a low Si concentration results in a significant reduction in the yield and quality of rice.

It is commonly known that plant stress is usually divided into two types: biotic and abiotic. Plants have two main ways to protect themselves: physical and chemical. Physical protection implies the presence of thorns, prickles, a strong epidermal layer, etc. This «armor» of many plants is silica accumulated in the cell walls. There is a lot of evidence that silicon plays a significant part in protecting plants from pests. Strengthening of cell walls by biomineralization of silicon compounds is one of the mechanisms that realize this protection. It acts as a physical barrier to insects, pathogens, and sometimes herbivores.

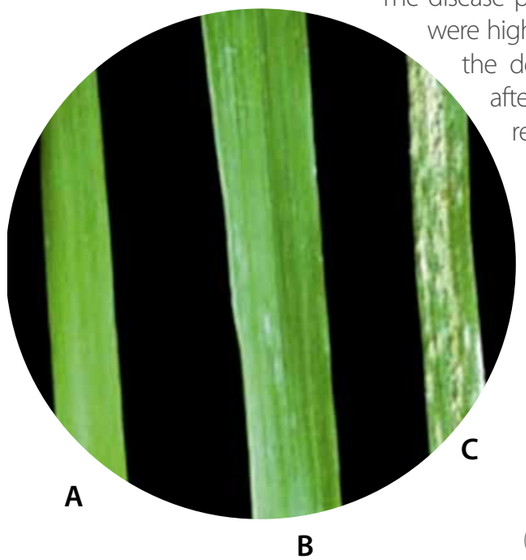
Chemical protection is much more complex, and plants do a tremendous job – they synthesize for this purpose a huge number of «secondary metabolites», compounds that are not vital in the metabolism of the plant, but they play a role in adaptation and resistance to environmental conditions. These substances affect the interaction of plants and organisms living in the plant's environment: insects, fungi, microbes, viruses.

Silicon fertilizers

an effective method to combat with plant stresses (both biotic: pests, fungal and bacterial diseases, and abiotic drought, high and low temperatures, lodging, salinization, UV radiation, etc.).

Numerous studies have shown that silicon is effective in combating fungal and bacterial diseases in various plant species. For example, Si increases the resistance of rice to a wide range of pathogens of fungal diseases (fusariosis, etc.) and reduces the incidence of powdery mildew in cucumber, barley and wheat.

The positive effect of silicon is clearly shown in the figure. The first signs of disease development were observed in control plants (Si-) 5 days after infection with powdery mildew. The disease progressed rapidly and after 5 weeks the control plants were highly infected (infection score = 3, 71). On the other hand, the degree of infection for Si+ plants, was very low even after 5 weeks – the average infection score was 0, 41. The results of this research prove conclusively that silicon provides effective protection of wheat from powdery mildew, what confirms numerous observations of the positive role of silicon in resisting fungal infections in monocotyledons.



Influence of silicon (Si +) on the development of powdery mildew on wheat leaves

A - a leaf without artificial infection of powdery mildew.

B - a leaf is artificially infected with powdery mildew (Si +).

C - a leaf is artificially infected with powdery mildew (Si -).

Influence of silicon (Si) on rice growth and yield.

(a) rice plants with low Si levels are susceptible to insect attacks,
(b) when the Si level in the grain is low, there is a color change due to infection with several fungal pathogens.
- Si The silicon content is 0, 48% in scions and 1, 44% in grains,
+ Si The content of silicon is 4, 21% in scions and 8, 05% in grains.
Silicon also increases plant resistance to insect pests. The figure shows that plants with low levels of silicon are susceptible to insect attacks.

The data analysis shows that the plant uses moisture more productively when applying active forms of Si. It is known that 20-30% of the silicon in the plant can participate in the process of maintaining the internal water reserve, and this is one of the mechanisms that allows plants to survive in conditions of acute water shortage. One of the factors that increase drought resistance is the ability of silicon to reduce transpirations and change the angle of plant leaves that provide a lower level of moisture evaporation and increase the possibilities of antioxidant protection of the plant. Silicon significantly affects the cooling of plant leaves. Treatment of leaves with silicon removes the heat load in high temperature conditions and significantly reduces the temperature of the leaves, by 3-4 oC. It has been established that after treatment of leaves with silicon biosilicon structures are formed in the epidermis. Thus, foliar application of silicon is an advantageous and environmentally friendly method of increasing the drought and heat resistance of plants. There are also studies that prove the significant role of silicon in the formation of frost resistance of plants, in particular winter wheat. Silicon also reduces the harmful effects of UV radiation.

The protective function of silicon in plants is the thickening of the epidermal layer, increasing the chemical stability of DNA, RNA and chlorophyll molecules, functional activation of cellular organelles, optimization of transport and redistribution of substances within the plant, etc.

It is also assumed that there is a general universal mechanism for increasing their resistance to stress.

This mechanism is conditioned upon the ability of polysilicic acids to conduct directed catalytic synthesis of organic substances (stress enzymes, antioxidants of specific and non-specific nature, or intermediate compounds that are necessary for the metabolic synthesis of these molecules) under normal conditions.

Silicon increases the level of resistance of plants to any stress and does not have a toxic effect on the organism. Thus, the main function of silicon in a plant can be to increase the organism's resistance to adverse conditions, which is expressed in thickening of the epidermal tissues (mechanical protection), acceleration of the growth and development of the root system (physiological protection), binding of toxic compounds (chemical protection) and increasing the biochemical resistance to stress (biochemical protection, reducing the effects of high temperatures (thermal protection).

The variety of plants that show a positive response to the introduction of silicon compounds proves that all these mechanisms are characteristic of both silicophilous and non-silicophilous plants.

Nanosilicon is a mineral fertilizer, an environmentally friendly product made on the basis of ultra-pure silicon, produced using a unique technology that ensures the production and preservation of biologically active silicon, colloidal size.

The product is available in liquid form, intended for the preparation of aqueous solutions. It contains silicon and other vital minor nutrients in plant uptake form

Mass fraction of active elements (nutrition elements), minimum:

silicon	ferrum	copper	zinc
17-22 %	1-4%	0,05 -0,1%	0,05-0,1 %

pH rate - 7,8

The color is deep grey

Intended use

- Pre-sowing seed treatment
- Accelerates seed germination and plant growth
- It serves as additional fertilization during the growing season
- Increases crop yield and plant resistance to adverse environmental conditions.

Mechanism of action

Modern scientific research shows that the processes that facilitate the life of the cell have an electrical nature.

The main hidden mechanism of the successful operation of the new fertilizer is a very small size of particles of the pure silicon crystal. It is in the nano size of silicon that allows it to freely penetrate the cell membrane and become accessible at the cellular level. Essentially, the plant cell gets an energy plant in addition to its internal batteries. It is additional vital energy!

Preparative form - concentrated solution, P=1, 5 g/cm3

Hazard class
4 - low-hazard

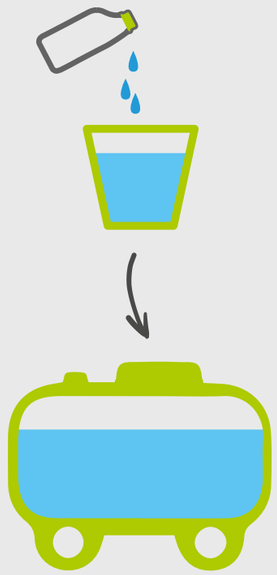
Temperature range
+ 45^0 C - 45^0 C

Shelf life 5 years
No expiry date

Packaging - bottle
1 l - 1,5 kg canisters
3 liters - 4, 5kg
5 liters - 7, 5kg

Advantages

- The silicon base of the product makes it unique among plant growth regulators
- Complex general strengthening and balanced regulating effect on the life processes of plants
- Increases the field germination rate and seed germinating energy
- Stimulates the development of the root system, growth and development of the plant
- Increases frost resistance and facilitates rapid recovery of crops after wintering
- Facilitates prolonged assimilation activity of the photosynthetic apparatus in plants, which results in the accumulation of biomass and increase in productivity
- Gives plants mechanical strength, strengthens the walls of epidermal cells and prevents lodging
- Increases the resistance of plants to physiological diseases and relieves stress, strengthens the protective functions of plants
- Participates in the process of maintaining the internal water reserve, increases the resistance of plants to drought, extreme high temperatures
- Facilitates more complete assimilation of nutrients from the soil and fertilizers
- Significantly extends the shelf life and improves the palatability traits and appearance of vegetables, fruits and berries.
- Reduces the accumulation of nitrates and heavy metals in plants
- Environmental and genetic safety
- Easy to use, low rates of application
- No additional energy costs due to compatibility with the entire product line of agrochemicals.
- Russian development and production - Import substitution.
- Manufacturability



Compatible with the entire product line of agrochemicals.

Procedure for preparation of the spray material

- Apply only through the mother liquor.
- Shake well the bottle of Nanosilicon fertilizer
- Dissolve maximum 3 kg of the product in 10 liters of water.
- Add the resulting solution to the sprayer barrel.
- The solution should be prepared directly before use and used for no more than 6 hours.
- The flow rate of the spray material is 100-300 l / ha.

Do not:

- Store the diluted solution in a closed container.

Wheat, Barley, Rye, Oats

NanoSilicon

PRESOWING TREATMENT

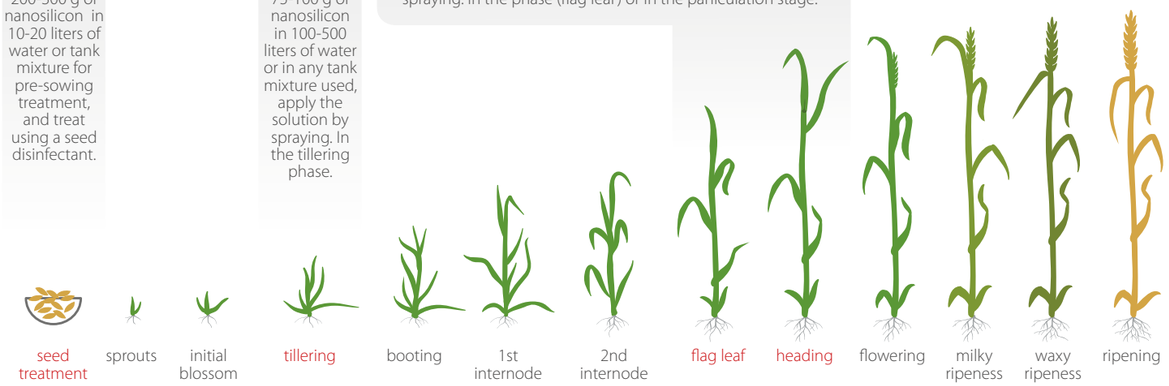
For 1 ton of seeds, dilute 200-300 g of nanosilicon in 10-20 liters of water or tank mixture for pre-sowing treatment, and treat using a seed disinfectant.

1st TREATMENT

For 1 hectare, dilute 75-100 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution by spraying. In the tillering phase.

2nd TREATMENT

For 1 hectare, dilute 75-100 g of nanosilicon in 100-500 liters of water or any tank mixture, apply the solution on the crops by spraying. In the phase (flag leaf) or in the paniculation stage.



Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Rice

NanoSilicon

PRESOWING TREATMENT

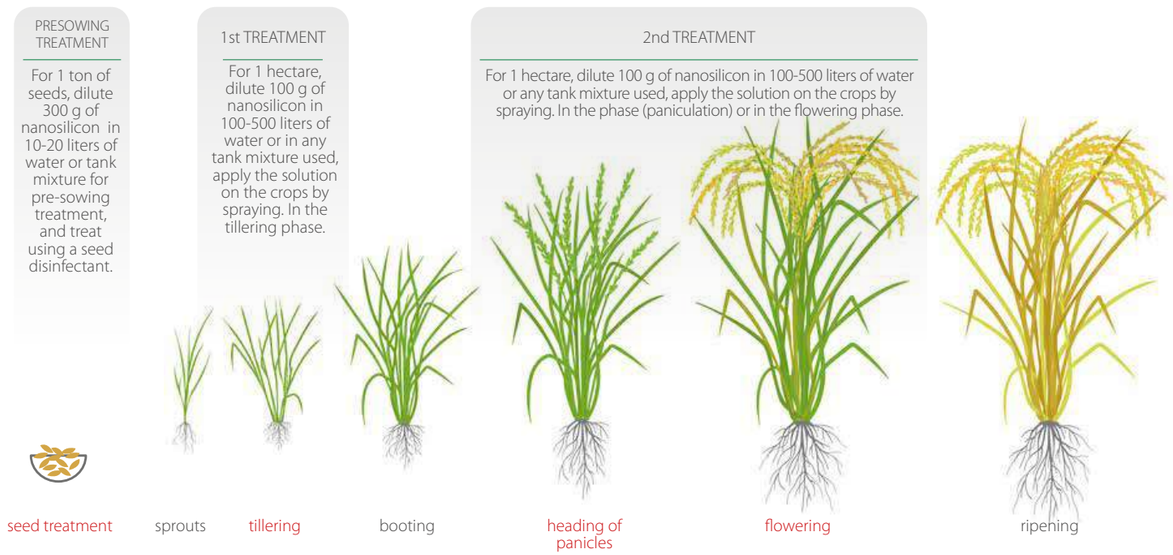
For 1 ton of seeds, dilute 300 g of nanosilicon in 10-20 liters of water or tank mixture for pre-sowing treatment, and treat using a seed disinfectant.

1st TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution on the crops by spraying. In the tillering phase.

2nd TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture used, apply the solution on the crops by spraying. In the phase (paniculation) or in the flowering phase.



Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Sunflower

NanoSilicon

PRESOWING TREATMENT

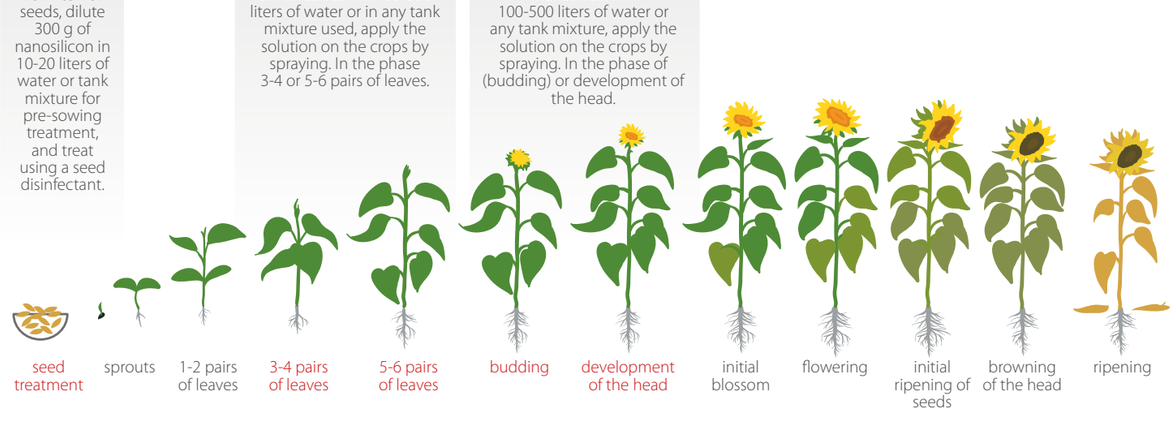
For 1 ton of seeds, dilute 300 g of nanosilicon in 10-20 liters of water or tank mixture for pre-sowing treatment, and treat using a seed disinfectant.

1st TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution on the crops by spraying. In the phase 3-4 or 5-6 pairs of leaves.

2nd TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture, apply the solution on the crops by spraying. In the phase of (budding) or development of the head.



Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Corn

NanoSilicon

PRESOWING TREATMENT

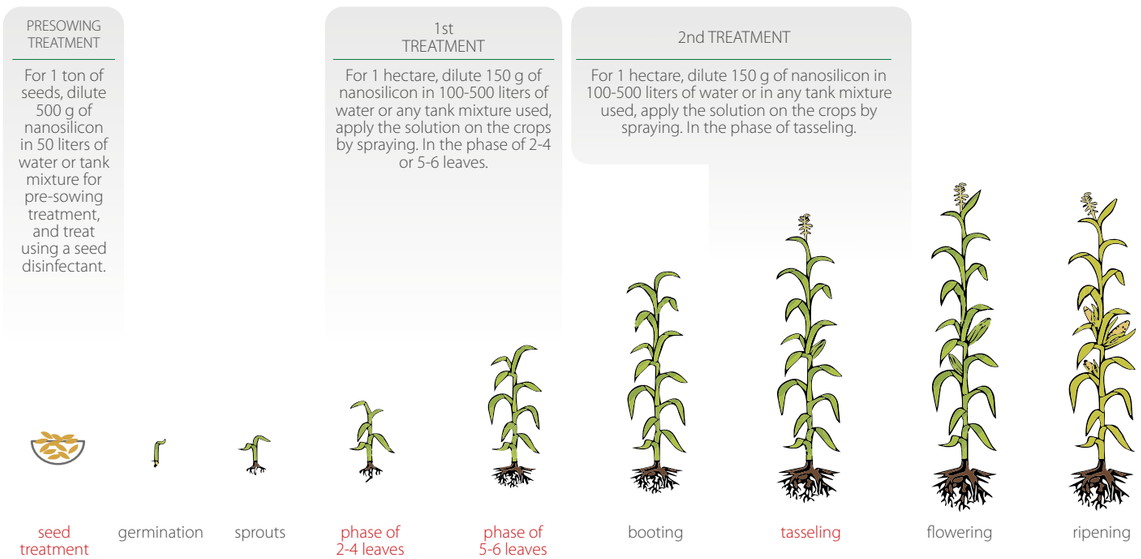
For 1 ton of seeds, dilute 500 g of nanosilicon in 50 liters of water or tank mixture for pre-sowing treatment, and treat using a seed disinfectant.

1st TREATMENT

For 1 hectare, dilute 150 g of nanosilicon in 100-500 liters of water or any tank mixture used, apply the solution on the crops by spraying. In the phase of 2-4 or 5-6 leaves.

2nd TREATMENT

For 1 hectare, dilute 150 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution on the crops by spraying. In the phase of tasseling.



Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Rapeseed

NanoSilicon

PRESOWING TREATMENT

For 1 ton of seeds, dilute 300 g of nanosilicon in 10-20 liters of water or tank mixture for pre-sowing treatment, and treat using a seed disinfectant.

1st TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture used, apply the solution on the crops by spraying. In the phase of leaf rosette formation.

2nd TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture, apply the solution on the crops by spraying. In the phase (budding) (initial blossom) or in the flowering phase.

Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Soy

NanoSilicon

PRESOWING TREATMENT

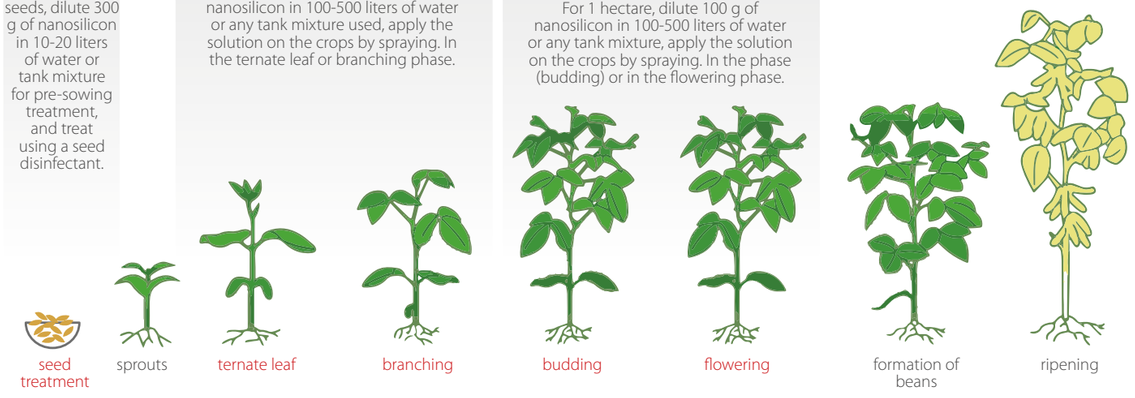
For 1 ton of seeds, dilute 300 g of nanosilicon in 10-20 liters of water or tank mixture for pre-sowing treatment, and treat using a seed disinfectant.

1st TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture used, apply the solution on the crops by spraying. In the ternate leaf or branching phase.

2nd TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture, apply the solution on the crops by spraying. In the phase (budding) or in the flowering phase.



Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Pea, Chick pea, Lentil, Bean

NanoSilicon

PRESOWING TREATMENT

For 1 ton of seeds, dilute 300 g of nanosilicon in 10-20 liters of water or tank mixture for pre-sowing treatment, and treat using a seed disinfectant.

1st TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution on the crops by spraying. In phase of 3-5 leaves

2nd TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture, apply the solution on the crops by spraying. In the phase (budding) or in the flowering phase.

Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Sugar beet, Red beet

NanoSilicon

PRESOWING TREATMENT

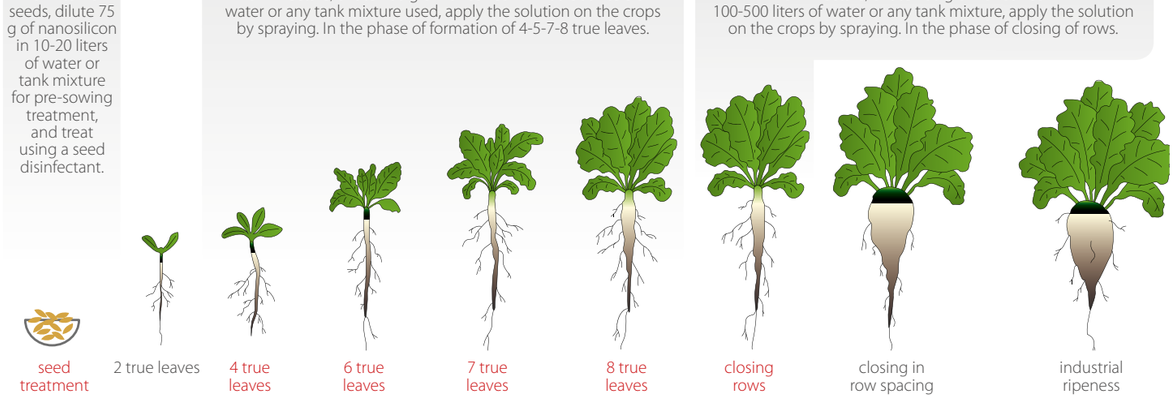
For 1 ton of seeds, dilute 75 g of nanosilicon in 10-20 liters of water or tank mixture for pre-sowing treatment, and treat using a seed disinfectant.

1st TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture used, apply the solution on the crops by spraying. In the phase of formation of 4-5-7-8 true leaves.

2nd TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture, apply the solution on the crops by spraying. In the phase of closing of rows.



Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Potato

NanoSilicon

PRESOWING TREATMENT

For 1 ton of seeds, dilute 200 g of nanosilicon in 10-20 liters of water or tank mixture for pre-sowing treatment, and treat using a spraying method.

1st TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in in 100-500 liters of water or any tank mixture, apply the solution on the crops by spraying. In the phase of leaf formation.

2nd TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture, apply the solution on the crops by spraying. In the budding phase.

treatment of tubers · germination · sprouts · formation of leaves · closing rows · budding · flowering · ripening of tubers · wilting

Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Lint

NanoSilicon

PRESOWING TREATMENT

For 1 ton of seeds, dilute 300 g of nanosilicon in 10-20 liters of water or tank mixture for pre-sowing treatment, and treat using a seed disinfectant.

1st TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture used, apply the solution on the crops by spraying. In the herringbone phase.

2nd TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture, apply the solution on the crops by spraying. In the budding phase.

seed treatment · sprouts · herringbone phase · budding · flowering · ripening

Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Cabbage

NanoSilicon

PRESOWING TREATMENT

For 1 kg of seeds, dilute 50 g of nanosilicon in 1-2 liters of water or tank mixture for pre-sowing treatment, and treat by soaking for 20-30 min.

1st TREATMENT

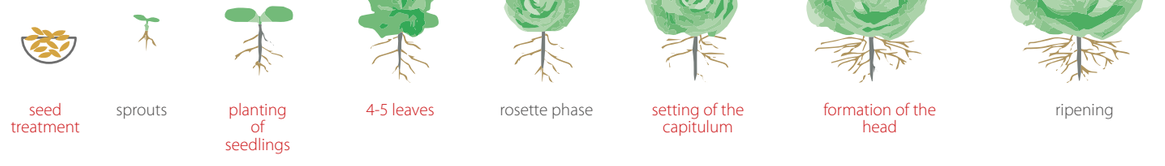
For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture used, apply the solution on the crops by spraying. In the phase of planting seedlings or 4-5 leaves.

2nd TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture, apply the solution on the crops by spraying. In the phase of setting of the capitulum.

3d TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture, apply the solution on the crops by spraying. In the phase of formation of the head.



seed treatment · sprouts · planting of seedlings · 4-5 leaves · rosette phase · setting of the capitulum · formation of the head · ripening

Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Buckwheat

NanoSilicon

PRESOWING TREATMENT

For 1 ton of seeds, dilute 300 g of nanosilicon in 20 liters of water or tank mixture for pre-sowing treatment, and treat using a seed disinfectant.

1st TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution on crops by spraying. In the branching phase.

2nd TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution on the crops by spraying. In the budding phase.

seed treatment · sprouts · 3-5 leaves · branching · budding · flowering · fruitification · ripening

Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Tomato, pepper, eggplant

NanoSilicon

PRESOWING TREATMENT

For 1 kg of seeds, dilute 50 g of nanosilicon in 1-2 liters of water or tank mixture for pre-sowing treatment, and treat by soaking for 20-30min.

1st TREATMENT

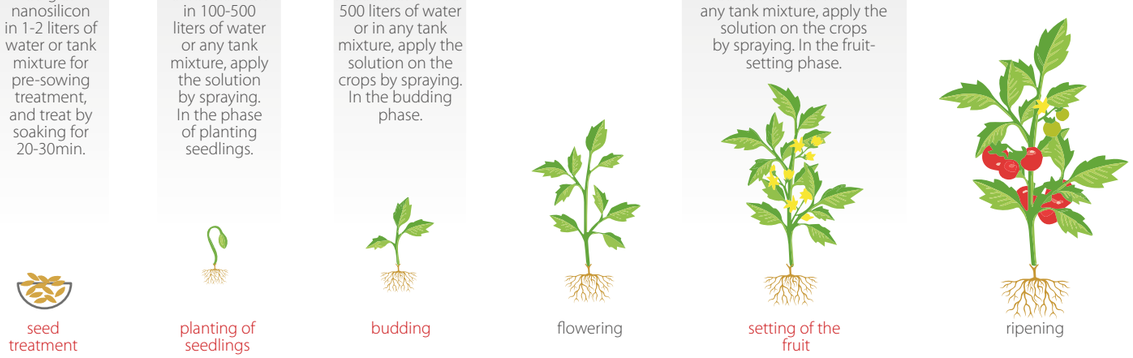
For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture, apply the solution by spraying. In the phase of planting seedlings.

2nd TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or in any tank mixture, apply the solution on the crops by spraying. In the budding phase.

3d TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture, apply the solution on the crops by spraying. In the fruit-setting phase.



seed treatment · planting of seedlings · budding · flowering · setting of the fruit · ripening

Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Cucumber, zucchini, squash

NanoSilicon

PRESOWING TREATMENT

For 1 kg of seeds, dilute 50 g of nanosilicon in 1-2 liters of water or tank mixture for pre-sowing treatment, and treat by soaking for 20-30min.

1st TREATMENT

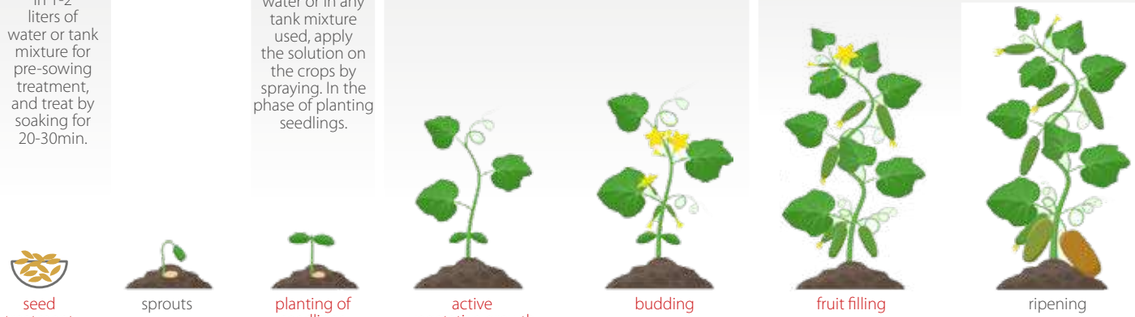
For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution on the crops by spraying. In the phase of planting seedlings.

2nd TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture used, apply the solution on the crops by spraying. In the budding phase.

3d TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or any tank mixture, apply the solution on the crops by spraying. In the fruit filling phase.



seed treatment · sprouts · planting of seedlings · active vegetative growth · budding · fruit filling · ripening

Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Watermelon, melon, pumpkin

NanoSilicon

PRESOWING TREATMENT

For 1 kg of seeds, dilute 25 g of nanosilicon in 1-2 liters of water or tank mixture for pre-sowing treatment, and treat by soaking for 20-30min.

1st TREATMENT

For 1 hectare, dilute 100 g of nanosilicon 100-500 liters of water or any tank mixture used, apply the solution on the crops by spraying. In the phase 1st pair of true leaves.

2nd TREATMENT

For 1 hectare, dilute 100 g of nanosilicon 100-500 liters of water or any tank mixture used, apply the solution on the crops by spraying. In the phase (budding) or in the flowering phase.

seed treatment · sprouts · 1st pair of true leaves · 2nd pair of true leaves · spreading of trailings · budding · flowering · fruit filling · ripening

Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Grape

NanoSilicon

1st TREATMENT

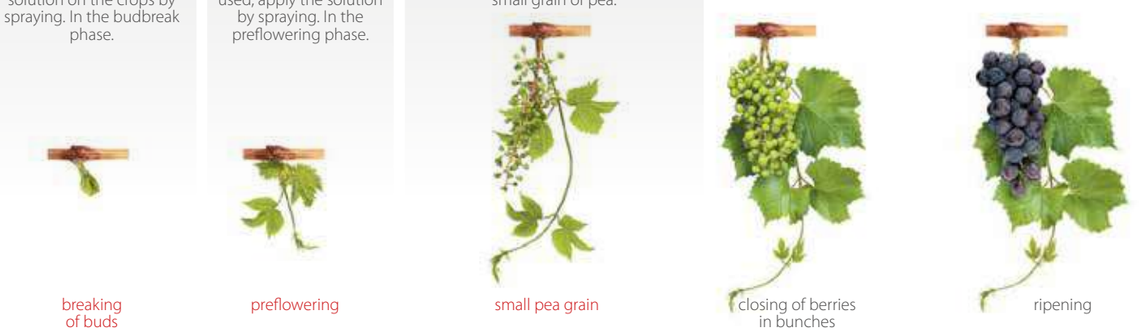
For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution on the crops by spraying. In the budbreak phase.

2nd TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution by spraying. In the preflowering phase.

3d TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution to crops by spraying. In the phase of a small grain of pea.



breaking of buds · preflowering · small pea grain · closing of berries in bunches · ripening

Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Strawberry, wild strawberry, raspberry, currant

NanoSilicon

1st TREATMENT

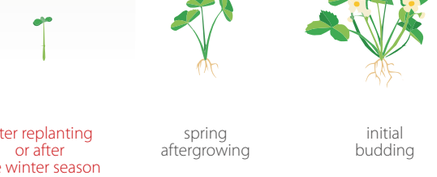
For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution on the crops by spraying. In the phase of planting seedlings or after the winter season.

2nd TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution on the crops by spraying. In the flowering phase.

3d TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution on the crops by spraying. In the ripening phase.



after replanting or after the winter season — spring aftergrowing — initial budding — flowering — ripening

Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Fruit and berry crops

NanoSilicon

1st TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 1000 liters of water or in any tank mixture used, apply the solution on the foliage by spraying. In the rosebud phase.

2nd TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 1000 liters of water or in any tank mixture used, apply the solution to the foliage by spraying. In the phase of full blossom, the growth of fruit inception.

3d TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 1000 liters of water or in any tank mixture used, apply the solution to the foliage by spraying. In the phase of active fruit growth.

breaking buds — phase of rose bud — initial blossom — full blossom growth of fruit inception — phase of active fruit growth — ripening

Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Onion, garlic

NanoSilicon

PRESOWING TREATMENT

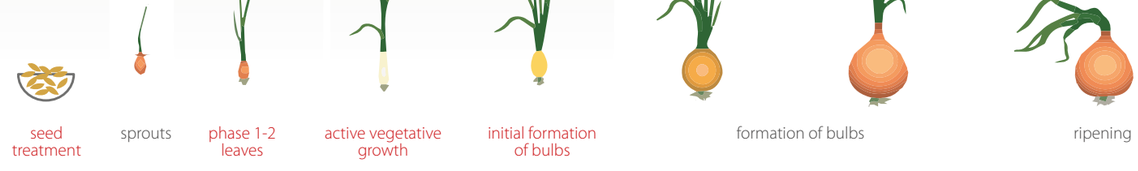
For 100 kg of seeds, dilute 50 g of nanosilicon in 10-20 liters of water or tank mixture for pre-sowing treatment, and treat by soaking for 20-30min.

1st TREATMENT

For 1 hectare, dilute 150 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution on the crops by spraying. In the phase of 1-2 leaves.

2nd TREATMENT

For 1 hectare, dilute 150 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution on the crops by spraying. In the phase (active vegetative growth) or initial bulb formation.



seed treatment — sprouts — phase 1-2 leaves — active vegetative growth — initial formation of bulbs — formation of bulbs — ripening

Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

Carrot, radish, horseradish, celery

NanoSilicon

PRESOWING TREATMENT

For 1 kg of seeds, dilute 50 g of nanosilicon in 1-2 liters of water or tank mixture for pre-sowing treatment, and treat by soaking for 20-30min.

1st TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution on the crops by spraying. It is necessary to perform in the phase (2-4 leaves) or leaf growth.

2nd TREATMENT

For 1 hectare, dilute 100 g of nanosilicon in 100-500 liters of water or in any tank mixture used, apply the solution on the crops by spraying. In the phase (root crop growth) or root crop formation.

seed treatment — sprouts — phase of 2-4 leaves — leaf growth — root crop — formation root crop — closing rows — ripening

Each application scheme can be adjusted based on the enterprise technology of growing the crop, the planned yield, and other factors.

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SANTE PUBLIQUE,
SECURITE DE LA CHAINE ALIMENTAIRE
ET ENVIRONNEMENT

DG Animaux, Végétaux et Alimentation
Service Produits phytopharmaceutiques et Fertilisants

numéro du dossier: 22263

date 29/03/2022
contact Generet Alfred
tél. 02 524 72 61
e-mail alfred.generet@health.fgov.be
site: www.phytoweb.be

Luxnohcho Green World
Mekiyev Aslan
rue de Luxembour 3
7412 Bour
LUXEMBOURG (GRAND-DUCHÉ)

DEROGATION EM099.Q

Délivrée conformément à l'article 5 - §1er de l'Arrêté royal du 28 janvier 2013 relatif à la mise sur le marché et à l'utilisation des engrais, des amendements du sol et des substrats de culture;

Mélange d'oligo-éléments en suspension contenant du silicium.

Valable du 29/03/2022 jusqu'au 31/03/2027

Site de production/site de stockage
Luxnohcho Green World
Rue de Luxembourg, 3
7412 Bour
LUXEMBOURG (GRAND-DUCHÉ)

Détenteur de la dérogation
Luxnohcho Green World
Rue de Luxembourg 3
7412 Bour
LUXEMBOURG (GRAND-DUCHÉ)

Au nom du Ministre,

Chef de la Cellule Fertilisants

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- La (les) dose(s) et le(s) mode(s) d'emploi;
- La mention suivante: "A n'utiliser qu'en cas de besoin reconnu. Ne pas dépasser les doses adéquates."
- Les conditions spécifiques de stockage;
- La masse nette, facultativement le volume net;
- Le nom et l'adresse du titulaire de la dérogation;
- Le numéro de dérogation (voir ci-dessus);
- Mentions facultatives:
  * Les qualités substantielles à garantir peuvent être exprimées en g/l (ou kg/hl).

CONDITIONS GÉNÉRALES

Conditions d'utilisation
Pas d'application

Autres conditions
Conditionnement: emballage.

CONDITIONS POUR LA PROLONGATION / LE RENOUVELLEMENT

Avant le 31/12/2026
introduire une demande de renouvellement, accompagnée:
- d'au moins une analyse récente portant sur:
* les paramètres mentionnés sous la rubrique 'Critères' (voir ci-dessus)
- d'un modèle de l'étiquette ou du document d'accompagnement

AUTRES PRESCRIPTIONS

Rétribution
La rétribution au Fonds budgétaire des matières premières et des produits est valable jusqu'au 31/03/2027.

Prescriptions particulières

Pas d'application

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CARACTERISTIQUES

Dénomination du type
Mélange d'oligo-éléments en suspension contenant du silicium.

Classification
Engrais déclarant plusieurs oligoéléments (annexe I - chapitre V - division II.B)

Description
Solution obtenue par addition:
- de silicium;
- à un mélange fluide d'oligo-éléments tel que défini au chapitre V de l'annexe I de l'arrêté royal susmentionné.

Critères

- Somme des teneurs en oligo-éléments	au moins 2 %
- La nature et les teneurs des oligo-éléments doivent être conformes aux exigences prévues pour l'engrais à base d'oligo-éléments correspondant repris au chapitre V de l'annexe I de l'arrêté royal du 28 janvier 2013 susmentionné.	
- Silicium (Si) total	au moins 20 %

MENTIONS À INDIQUER SUR L'ETIQUETTE

- La dénomination du type (voir ci-dessus);
- Les qualités substantielles à garantir :

Obligatoires	**Unités**
Les garanties doivent être conformes aux exigences prévues pour l'engrais à base d'oligo-éléments correspondant repris au chapitre V de l'annexe I de l'arrêté royal du 28 janvier 2013 susmentionné.	% masse
Silicium (Si) total	% mass
Facultatifs	**Unités**
Silicium (Si) soluble dans l'eau	% masse
Dioxyde de silicium (SiO2) total	% masse
Dioxyde de silicium (SiO2) soluble dans l'eau	% masse

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Prescriptions générales

Cette dérogation est incessible et remplace le cas échéant tout autre acte de dérogation délivré antérieurement pour ce produit.

Sans préjudice des dispositions prévues par l'A.R. 28 janvier 2013 la composition, le type de formulation, les caractéristiques chimiques et physiques du produit ainsi que l'origine et le degré de pureté des matières premières doivent correspondre aux données fournies lors de la demande ou lors de toute demande ultérieure acceptée.

Cette dérogation n'engage pas la responsabilité de l'Etat en cas d'accidents dus à l'emploi du produit. Elle est délivrée sans préjudice des dispositions en ce qui concerne la fabrication et l'emploi de matières toxiques ou nocives.

Chaque changement de données communiquées en vue d'obtenir cette dérogation doit être renseigné immédiatement au Service compétent.

La commercialisation du produit visé par cette dérogation n'est autorisée que si le détenteur de la dérogation dispose également de l'enregistrement, autorisation ou agrément, conformément à l'arrêté royal du 16 janvier 2006 fixant les modalités des agréments, des autorisations et des enregistrements préalables délivrés par l'AFSCA.

Cette dérogation doit être communiquée sur place et sur demande aux délégués de l'Agence Fédérale pour la Sécurité de la Chaîne Alimentaire.

LUXNOHCHO GREEN WORLD

s.a.r.l.-s

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Bour. 74122

LUXEMBOURG

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