

NitroStim

bio
Suitable
for organic
agriculture

Microbial Growth Biostimulant

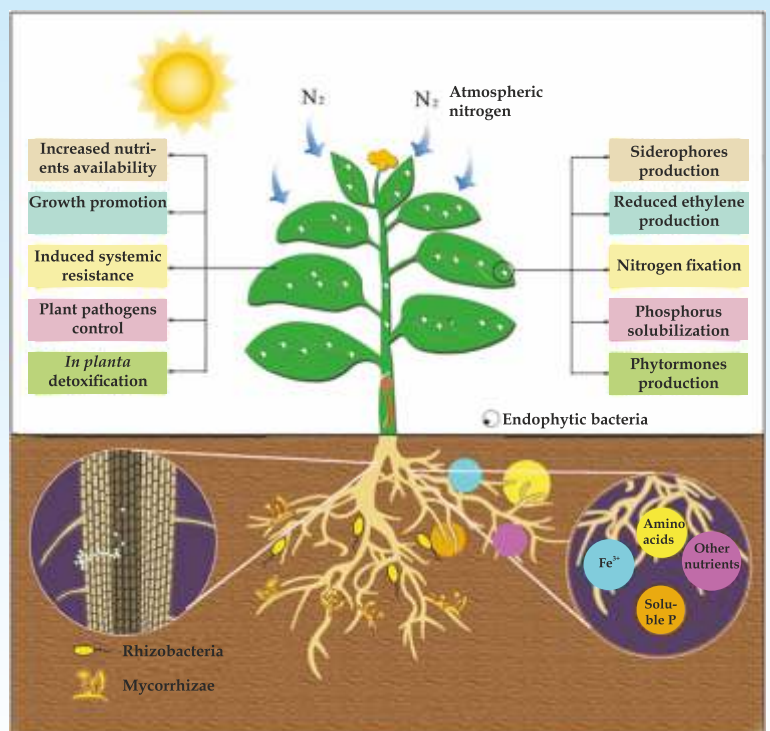
NitroStim is a microbial solution which stimulates plants growth thanks to the activity of specific beneficial nitrogen-fixing bacteria, which are capable of penetrating into the above-ground plants parts (phyllosphere) and of becoming endofytes. Nitrogen-fixing phyllosphere endofytes fix atmospheric nitrogen and convert it into a readily assimilable by plants form, ensuring a fast, vivid and balanced growth.

It contains leaf-endophytic nitrogen-fixing bacteria at a population of 1×10^{12} cfu per liter (cfu: colony forming units)

PROPERTIES

- It contributes to the fast and stable growth of cultures in 3 ways:
 - By providing constantly readily available nitrogen via nitrogen fixation
 - By producing phytohormones (eg auxines)
 - By increasing the uptake of nutrients by leafage
- It enforces plants against unfavourable environmental factors, such as drought, salinity etc.
- It increases plants resistance against biotic stress factors.
- It limits nitrogen fertilizers use.
- It contributes to the reduction of environmental pollution with nitric salts from the application of chemical fertilizers.
- It increases crops yields.

Nitrogen-fixing bacteria, which usually live freely in the soil and the rhizosphere or in symbiosis with the roots of certain plant species, fix atmospheric nitrogen and convert it into a form which is absorbable and assimilable by plants thanks to special enzymes they possess. Certain nitrogen-fixing bacteria species can enter and colonize the plant body, becoming endofytes. Endophytic bacteria colonize mainly inter-cellular spaces in roots, shoots, leaves, flowers and seeds. When the endophytic phase is met in leaves, where atmospheric air circulates constantly, nitrogen fixation takes place unhampered and fixed atmospheric nitrogen enters directly the metabolic processes of the plant, favouring it in various ways. First of all, plant growth is promoted because photosynthesis becomes more effective and plant hormones are composed, which play a decisive role in plant pathogens control and in systemic resistance acquisition. In cases of biotic or abiotic stresses, endophytic bacteria hamper increased ethylene production which provokes symptoms of premature ageing of plant. Moreover, endophytic bacteria of leaves increase the availability of many nutrients to the plant, such as of iron through siderophores production and of phosphorus via phosphorus solubilizing enzymes, while they contribute to plants detoxification from harmful minerals.



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APPLICATION METHOD: It is suitable for all crops. Apply by foliar spraying at the initial growth stages of the crops or whenever growth stimulation is required.

Crop	Rate	Application period
Wheat, Barley, Oat, Rye, Hop	1.5-5 L per ha	At 10-20 cm of growth
Maize	2.5-5 L per ha	At the stage of 15-20 cm
Cotton	2.5-5 L per ha	30-40 days after sowing
Rice	1.5-5 L per ha	At 15-20 cm of growth
Alfalfa, Clover, Fodders	2.5-5 L per ha	When there is adequate leafage to absorb the spray
Energy crops	2.5-5 L per ha	When there is adequate leafage to absorb the spray
Tomato, Cucumber, Pepper, Aubergine, Courgette, Melon, Watermelon	2.5-5 L per ha	At 15-20 cm of growth and when growth stimulation is required
Bean, Pea, Lentil	2.5-5 L per ha	At the stage of the first 4 real leaves
Broccoli, Cauliflower, Lettuce, Cabbage	1.5-5 L per ha	At the stage of the first 4-6 real leaves
Potato, Carrot, Onion, Leek, Radish	1.5-5 L per ha	At 10-15 cm of growth
Endive, Chicorium	1.5-5 L per ha	At the stage of the first 4 real leaves
Evergreen trees	5-10 L per ha	At the start-up of new vegetation. Repetition before flowering.
Deciduous trees	5-10 L per ha	As soon as the first leaves are fully grown. Repetition when the whole foliage is fully grown.
Vine	5-10 L per ha	As soon as the first leaves are fully grown. Repetition when the shoot is 45-60 cm long.
Medicinal herbs	2.5-5 L per ha	At the initial growth stages of the crop
Blue-grass, Urban green	50-100 ml per 100 square meters	Apply 2-3 times per year when there is adequate leaf surface to absorb the spray
Ornamental plants and bushes	250-500 ml per 100 liters of water	Apply 2-3 times per year when there is adequate leaf surface to absorb the spray
Strawberry	5-10 L per ha	When there is adequate leafage to absorb the spray



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