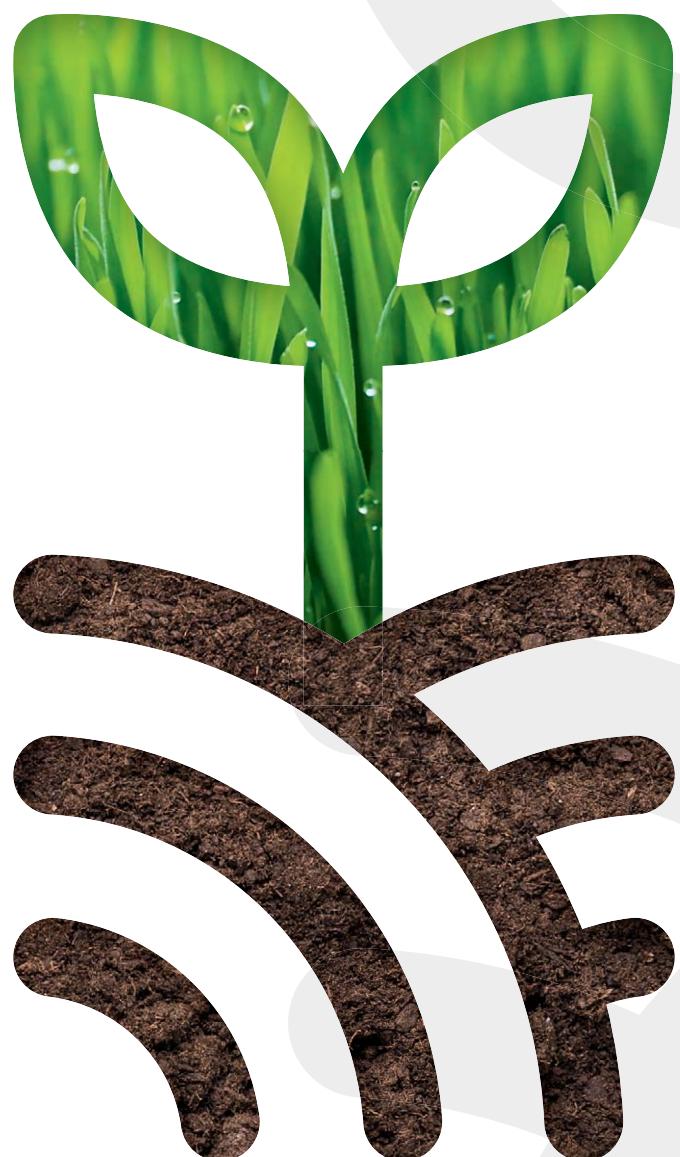




INTERMAG



CATALOG

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INTERMAG has been working for the benefit of agriculture since 1988, implementing innovative technologies. The uniqueness of our solutions is confirmed by dozens of national and international patents. A 20-person team from our research and development department works on new, innovative solutions using state-of-the-art research equipment.

In recent years, we have introduced numerous new products to our portfolio and refined existing solutions with new technologies. INTERMAG biostimulants and fertilizers stand out from other products on the market due to their excellent miscibility with agrochemicals and low application doses. We are among the companies that have certified the highest number of biostimulants in accordance with the European regulations, due to an extensive portfolio of research conducted by independent, renowned scientific institutions. More than hundred scientific articles have been published about our biostimulant **TYTANIT®** – both in Poland and internationally. Despite global competition, our products are used in 50 countries, including highly competitive markets such as the USA, Brazil, China, and India.

We are recognizing the importance of organic farming, we are systematically expanding our range of products for this sector, for example **BACTIM® SOIL**, **BACTIM® ENDOFIX**, **PLANTICINE®**, and the **AMINO ULTRA®** line, which have been certified by prestigious international certification institutions such as FiBL and ECOCERT.

In 2025, we are expanding our **AMINO ULTRA®** line of micronutrient fertilizers with new products – **AMINO ULTRA® ACTIVE SL** and **AMINO ULTRA® CITRUS**, designed to meet different plant nutritional needs. Additionally, we are introducing new fertilisers: **MIKROVIT® COMO** and **PLONVIT® N37**.

We also introduce several new microbiological products. These include **BACTIM® SAFE PK**, **BACTIM® PANTOEA CARE**, **BACTIM® VERSUS**, and a new brand of mycorrhizal products – **MYCOTIM**.

Furthermore, we are launching a new adjuvant **HEROSIL™**, which enhances the efficacy of crop protection products and foliar fertilizers, ensuring better coverage and absorption under unfavorable weather conditions.

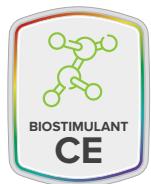
Yours sincerely
CEO of INTERMAG

A handwritten signature in blue ink that reads "Hubert Kordan".



BIOSTIMULANTS

- **Unique** solutions protected by many patents
- **High efficiency** of biostimulation and improvement of plant resistance to difficult conditions
- **Efficiency** verified by scientific centers and farmers around the world
- **Technologies** that increase the quantity and quality of crops, and improve the profitability of production
- Solutions consistent with **good practices** for sustainable agriculture



TYTANIT.[®]

YIELD BIOSTIMULANT

TYTANIT[®] is a patented yield biostimulant, containing TITANIUM (Ti) in the form of a unique molecule **aTIUM[®]**. **TYTANIT[®]** catalyses natural plant physiological processes and therefore positively affects yield quantity and quality.

TYTANIT[®] contains the innovative molecule **aTIUM[®]** – a unique, bioavailable, organic titanium compound that ensures:

- biostimulation effect, which leads to the yield of higher quantity and quality
- very low effective dose rate per hectare
- excellent solubility and compatibility with the majority of agrochemicals.



Available package sizes: **0.1; 0.2; 0.5; 1; 5 L**

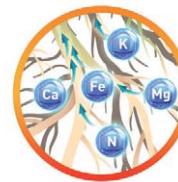
The greatest benefits of using **TYTANIT[®]** are:



IMPROVED POLLINATION



ENHANCED PHOTOSYNTHESIS



INCREASED NUTRIENT UPTAKE

TYTANIT[®] – direction of use:

TYTANIT[®] is recommended in the cultivation of all species of agricultural and horticultural crops for foliar application.

Foliar treatments



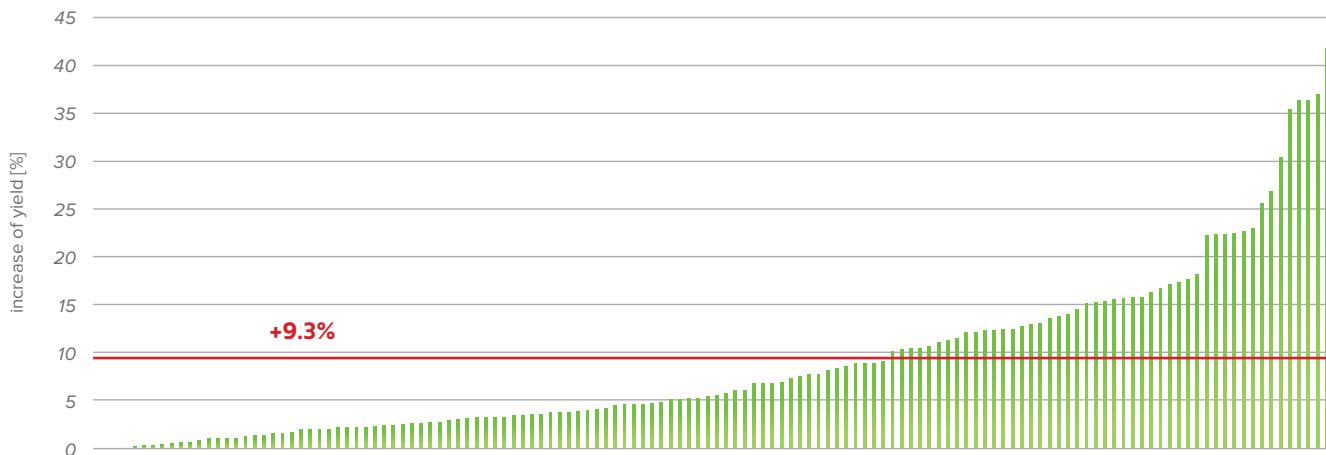
CROPS



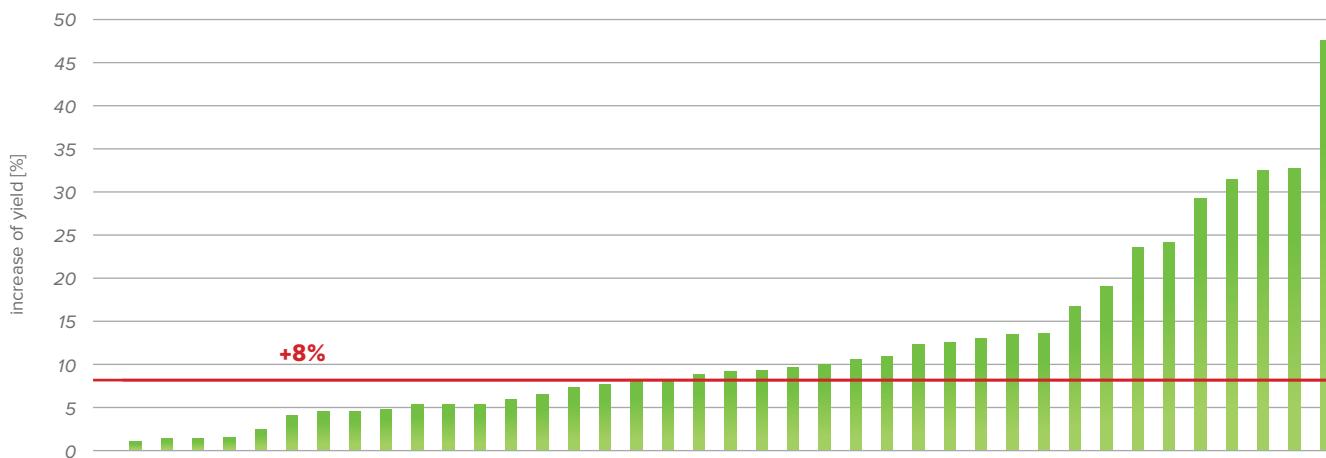
BIOSTIMULANTS

TYTANIT® – effectiveness confirmed by research:

Average yield increase after **TYTANIT®** application based on 155 studies from 1999 to 2024.



Average yield effect of **TYTANIT®** application on horticultural crops – 40 studies.



Effect of **TYTANIT®** application on the development and graining of winter wheat ears.
Poland.

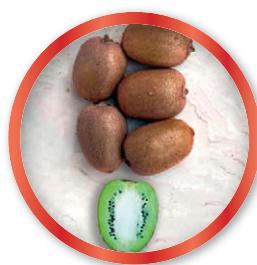


TYTANIT®
larger wheat ears with more grains inside



Control

Effect of **TYTANIT®** application on size and quality of kiwifruit.



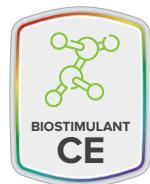
TYTANIT®



Control



OPTYSIL®



LEARN MORE

IMMUNITY BIOSTIMULANT

OPTYSIL® is an innovative SILICON immunity biostimulant with a very high content of fully water-soluble active form of silicon (200 g/L, expressed as SiO₂), which owes its effectiveness to the unique **duoSIL®** formula. This formula ensures full availability of silicon contained in the product, high stability and the ability to be mixed with the majority of agrochemicals.

OPTYSIL® contains the unique formula **duoSIL®** – active silicon form that is easily available to plants.

duoSIL® ensures:

- high content of the plant available form of silicon
- high stability due to the unique formula
- excellent solubility and miscibility with agrochemicals due to a neutral pH.



Available package sizes: **0.25; 0.5; 1; 5; 10 L**

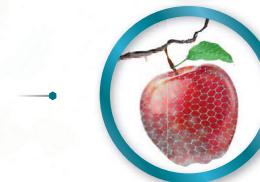
The greatest benefits of using **OPTYSIL®** are:



INCREASED PLANT TOLERANCE TO DROUGHT AND LOW TEMPERATURES AND LESS SUSCEPTIBILITY TO PATHOGEN PENETRATION



LOWER PLANT SUSCEPTIBILITY TO MECHANICAL DAMAGES



BETTER YIELD QUALITY

OPTYSIL® – direction of use:

OPTYSIL® is recommended in the cultivation of all types of agricultural and horticultural crops for foliar application and fertigation.



Foliar treatments



Single dose:
0.5 L/ha



Fertigation



Recommended
number
of treatments:
2–5

Fertigation



Single dose:
500 mL/ha



Apply every
2 weeks

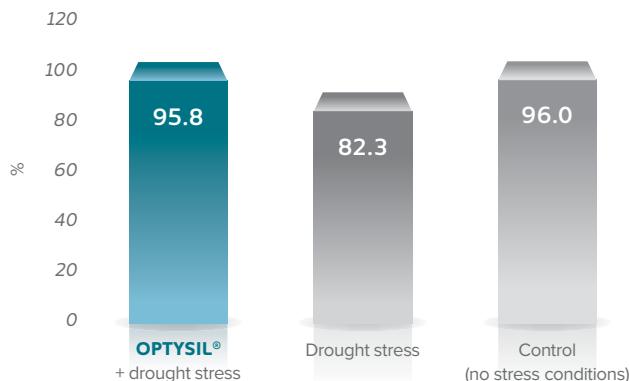
BIOSTIMULANTS

OPTYSIL® – effectiveness confirmed by research:

Effect of OPTYSIL® application on relative water content in leaves of wheat under drought stress [%].

Poland.

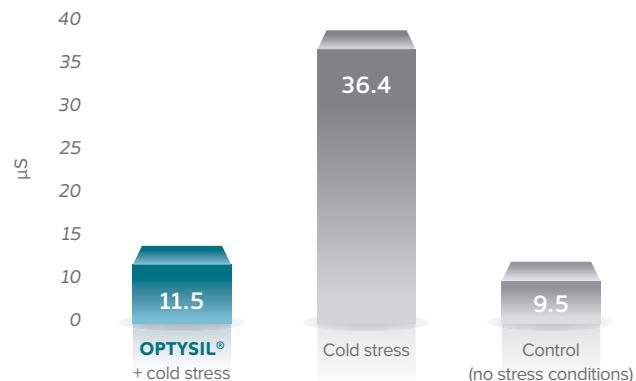
Drought: soil moisture -35% of maximum field capacity.



Effect of OPTYSIL® application on outflow of electrolytes from leaves of maize under cold stress [μS].

Poland.

Cold stress: temperature 3°C.



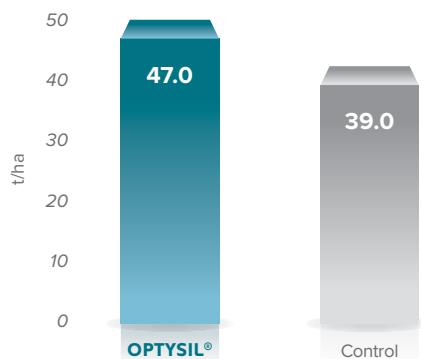
Effect of OPTYSIL® application on fruit firmness of strawberry [kg].

Poland.



Effect of OPTYSIL® application on marketable yield of tomato [t/ha].

Italy.



Effect of OPTYSIL® application on filling the avocado cells with silicon, resulting in strengthening the structure of the leaf.

Silicon visible as blue stains (magnification x 40).



OPTYSIL®



Control

Effect of OPTYSIL® on development of maize roots.

Institute of Soil Science and Plant Cultivation, Poland.

Application: 4-6 leaves unfolded.



OPTYSIL®



Control



OPTYSIL® LONGLIFE

OPTYSIL® LONGLIFE is intended to increase the shelf life of fruits and vegetables and to improve the storage and quality properties of the yield.

OPTYSIL® LONGLIFE contains a unique combination of silicon in the **duoSIL®** formula with a form of calcium formate.

OPTYSIL® LONGLIFE contains a unique **duoSIL®** formula combined with an organic form of calcium. This combination provides:

- high content of silicon available to plants
- source of highly effective calcium
- unique stability and miscibility with other agrochemicals.

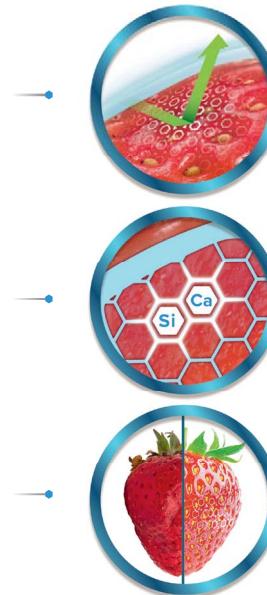
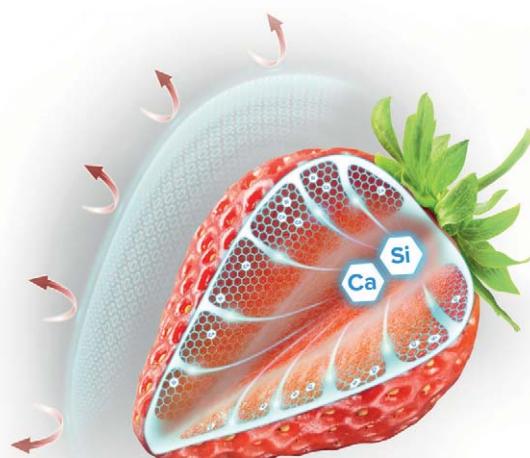


Available package sizes:
1; 5 kg

OPTYSIL® LONGLIFE – composition:

NUTRIENT CONTENTS [g/kg]				
Si	CaO	Cu	Mn	Zn
4.9	22	1.2	1.2	1.7

The greatest benefits of using **OPTYSIL® LONGLIFE** are:



LONGER POST-HARVEST SHELF LIFE

HIGHER RESISTANCE
TO MECHANICAL DAMAGES

BETTER QUALITY OF FRUIT
AND VEGETABLES

OPTYSIL® LONGLIFE® – direction of use:

OPTYSIL® LONGLIFE is recommended in the cultivation of all types of agricultural and horticultural crops for foliar application.

Foliar treatments



Single dose:
1–1.5 kg/ha

Recommended
number
of treatments:
2–5

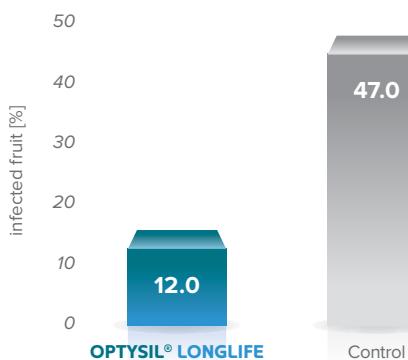
CROPS



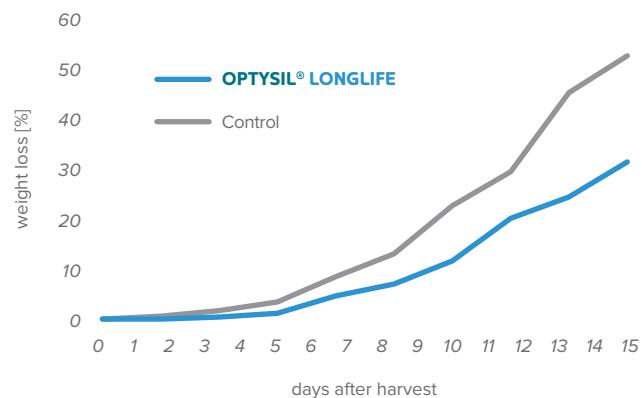
BIOSTIMULANTS

OPTYSIL® LONGLIFE – effectiveness confirmed by research:

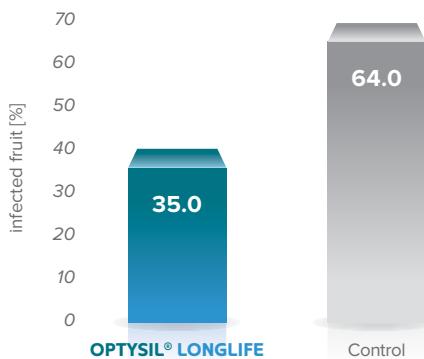
Effect of OPTYSIL® LONGLIFE application on reduction of symptoms of storage diseases on blueberry [%].
Poland.



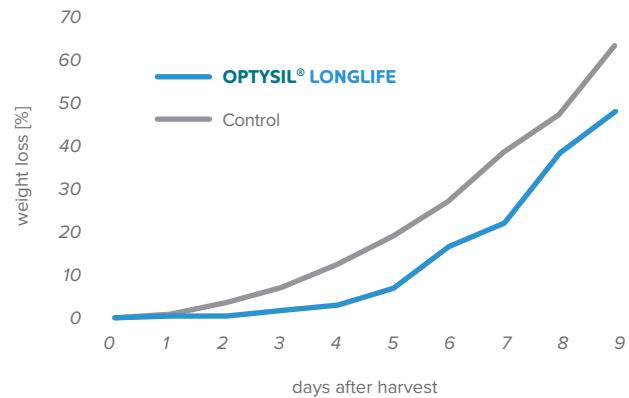
Effect of OPTYSIL® LONGLIFE application on the weight loss of blueberry during storage [%].
Poland.



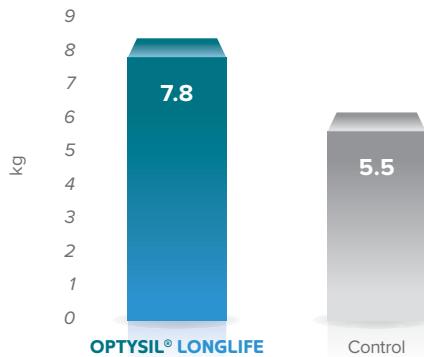
Effect of OPTYSIL® LONGLIFE application on reduction of the symptoms of storage diseases of raspberry [%].
Poland.



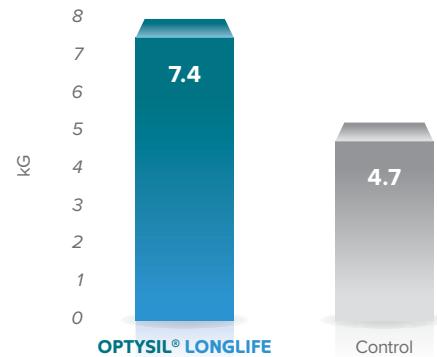
Effect of OPTYSIL® LONGLIFE application on the weight loss of raspberry during storage [%].
Poland.



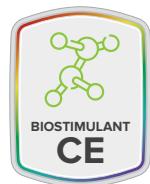
Effect of OPTYSIL® LONGLIFE application on firmness of apple, immediately after harvest [kg].
Poland.



Effect of OPTYSIL® LONGLIFE application on firmness of apple after storage [kG].
Poland.



VANADOO®



STORAGE ORGANS BIOSTIMULANT

VANADOO® is an innovative and unique biostimulant recommended in the cultivation of plants whose underground storage organs are intended for harvest. Thanks to the innovative and unique molecule **aVADIUM®**, the yield quantity and quality of plant underground storage organs are positively affected.

VANADOO® contains the unique molecule **aVADIUM®** – an organic, bioavailable vanadium compound.

aVADIUM® is:

- the first organic molecule containing vanadium dedicated to agriculture
- stimulation of sugar synthesis processes
- beneficial to the yield quantity and quality of plant underground storage organs.



Available package sizes: **0.25; 0.5; 1; 5 L**

The greatest benefits of using **VANADOO®** are:



INTENSIFIED SUGAR SYNTHESIS



IMPROVED SUGAR TRANSPORT TO STORAGE ORGANS



INCREASED SUGAR ACCUMULATION IN STORAGE ORGANS

VANADOO® – direction of use:

VANADOO® is recommended in the cultivation of plants whose underground storage organs are intended for harvest (e.g., roots, tubers).

Foliar treatments



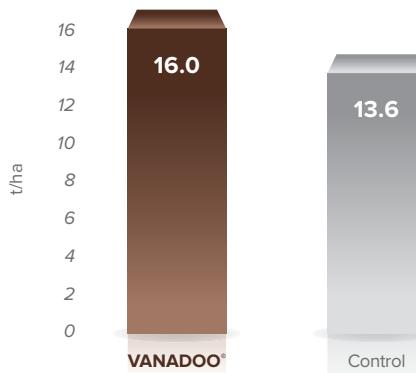
CROPS



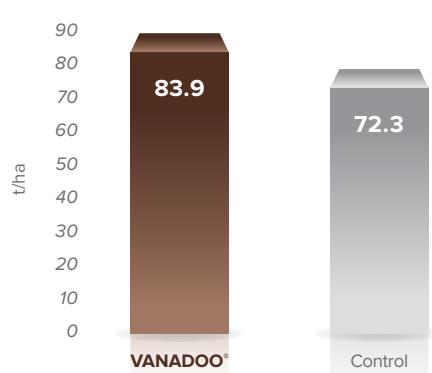
BIOSTIMULANTS

VANADOO® – effectiveness confirmed by research:

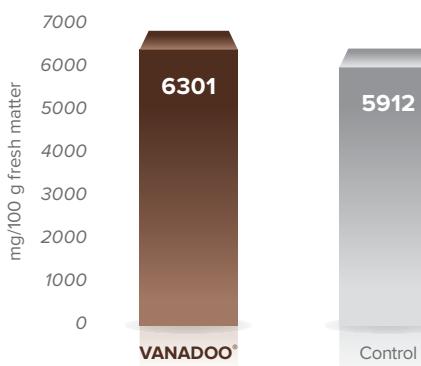
Effect of VANADOO® on biological sugar yield (sugar beet) [t/ha].
Poland.



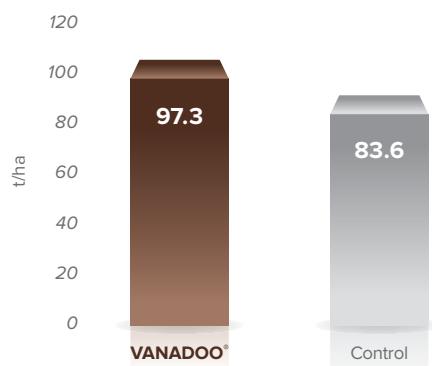
Effect of VANADOO® application on yield of sugar beet [t/ha].
Poland.



Effect of VANADOO® application on content of sugar in carrot roots
[mg/100 g fresh matter]
Poland.



Effect of VANADOO® application on yield of carrot [t/ha].
Poland.



Effect of VANADOO® application on yield and size of potato tubers.



VANADOO®



Control

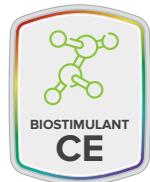
Effect of VANADOO® application on yield and size of carrot.



VANADOO®



Control



LEARN MORE

PLANTICINE®

PLANT IMMUNIZER

PLANTICINE® is a unique biostimulant of natural plant defence mechanisms, containing plant substances called oligogalacturonides. Thanks to the innovative and unique formula **BioVaxin®**, the product activates innate immunity, preparing plants for the attack of pathogens.

PLANTICINE® contains the unique formula **BioVaxin®** – bioactive and natural oligogalacturonides effectively activating plant innate immunity.

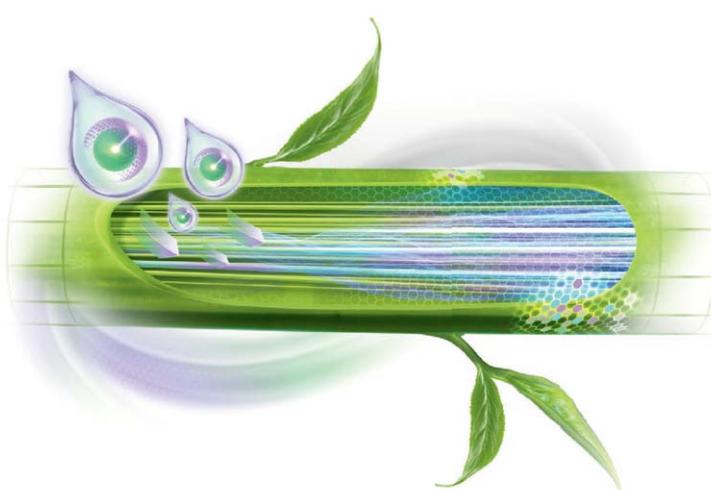
BioVaxin® ensures:

- innovative stimulation of natural plant defence mechanisms
- activation of ISR (Induced Systemic Resistance) and SAR (Systemic Acquired Resistance)
- effective plant resistance to pathogens' attack.

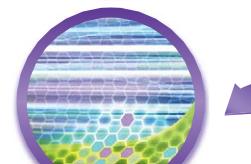


Available package sizes: **1; 5; 10 L**

The greatest benefits of using **PLANTICINE®** are:



**ACTIVATION OF NATURAL
PLANT DEFENCE
MECHANISMS**



**SYNTHESIS OF DEFENCE
PROTEINS (PR)**



**GREATER PLANT
RESISTANCE TO
PATHOGENS' ATTACK**

PLANTICINE® – direction of use:

PLANTICINE® is recommended in the cultivation of all types of agricultural and horticultural crops for foliar application.

Foliar treatments



Single dose:
2 L/ha

Recommended
number
of treatments:
2–6

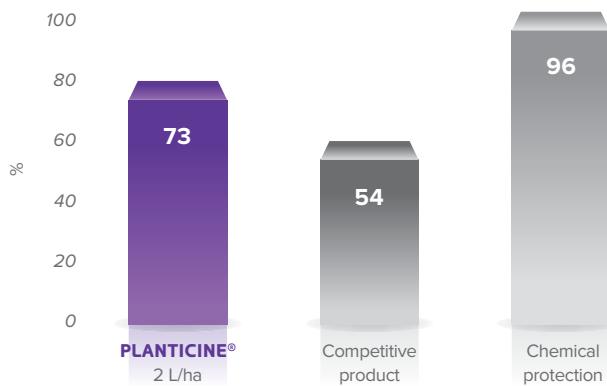
CROPS



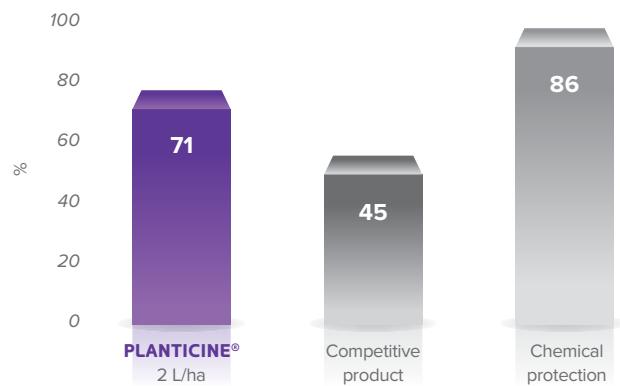
BIOSTIMULANTS

PLANTICINE® – effectiveness confirmed by research:

Effectiveness of **PLANTICINE®** on reducing downy mildew symptoms on cucumber leaves [%].
Poland.



Effectiveness of **PLANTICINE®** on reducing spider mites in strawberry cultivation [%].
Poland.



Effect of **PLANTICINE®** on the reduction of powdery mildew symptoms on leaves of cucumber grown in greenhouse [% of infected leaves].
Poland.



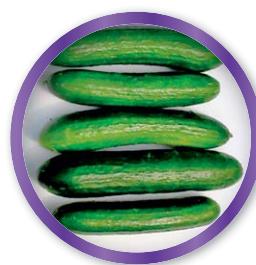
Effect of **PLANTICINE®** application on reduction of *Frankliniella occidentalis* in cucumber.
NEF SCIENCE, Poland.



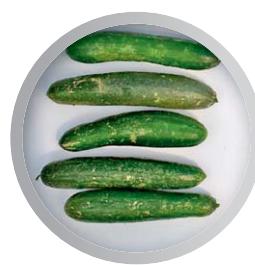
Integrated Production (IP)
+ **PLANTICINE®**



Integrated Production (IP)



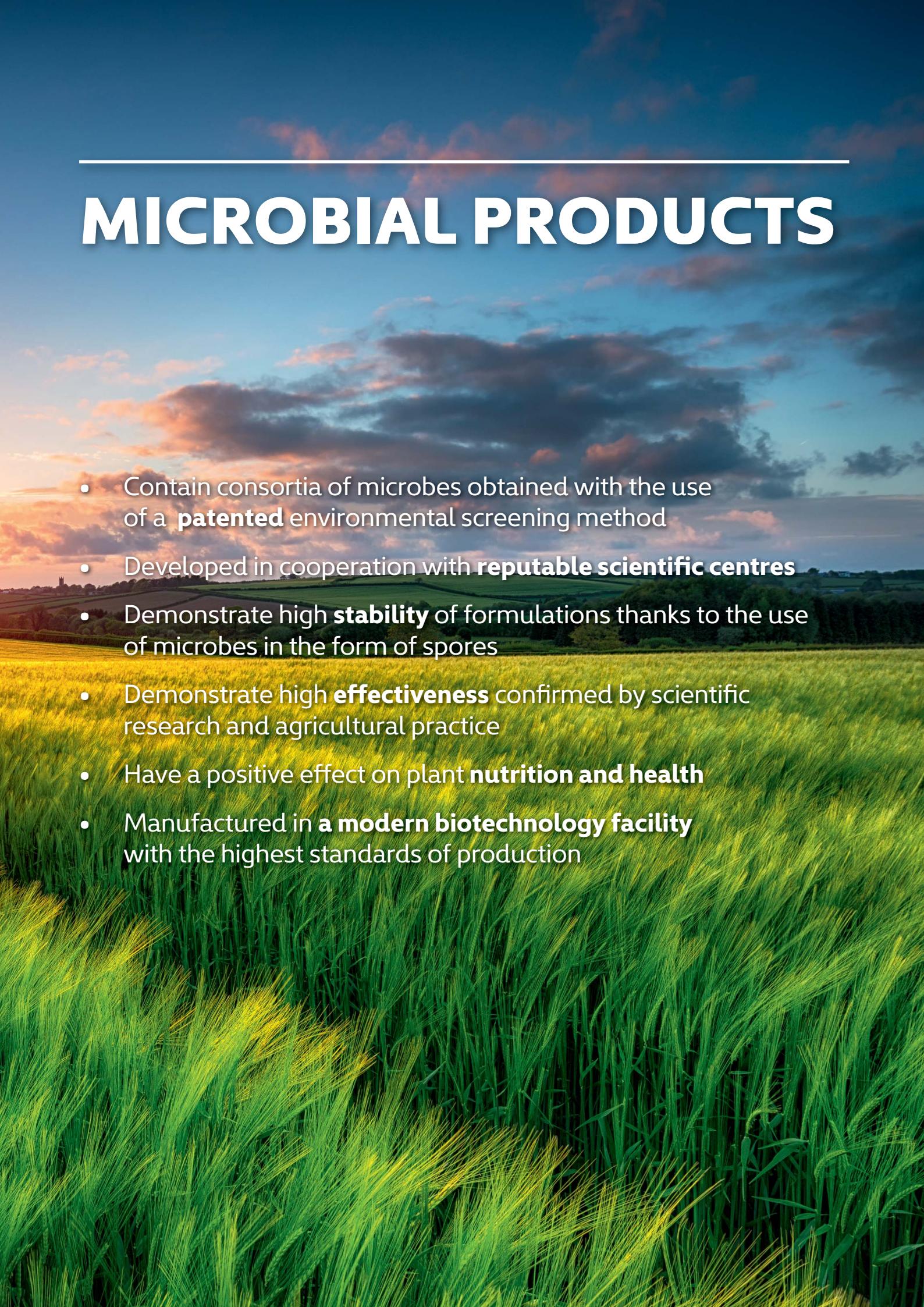
Integrated Production (IP)
+ **PLANTICINE®**



Integrated Production (IP)



MICROBIAL PRODUCTS

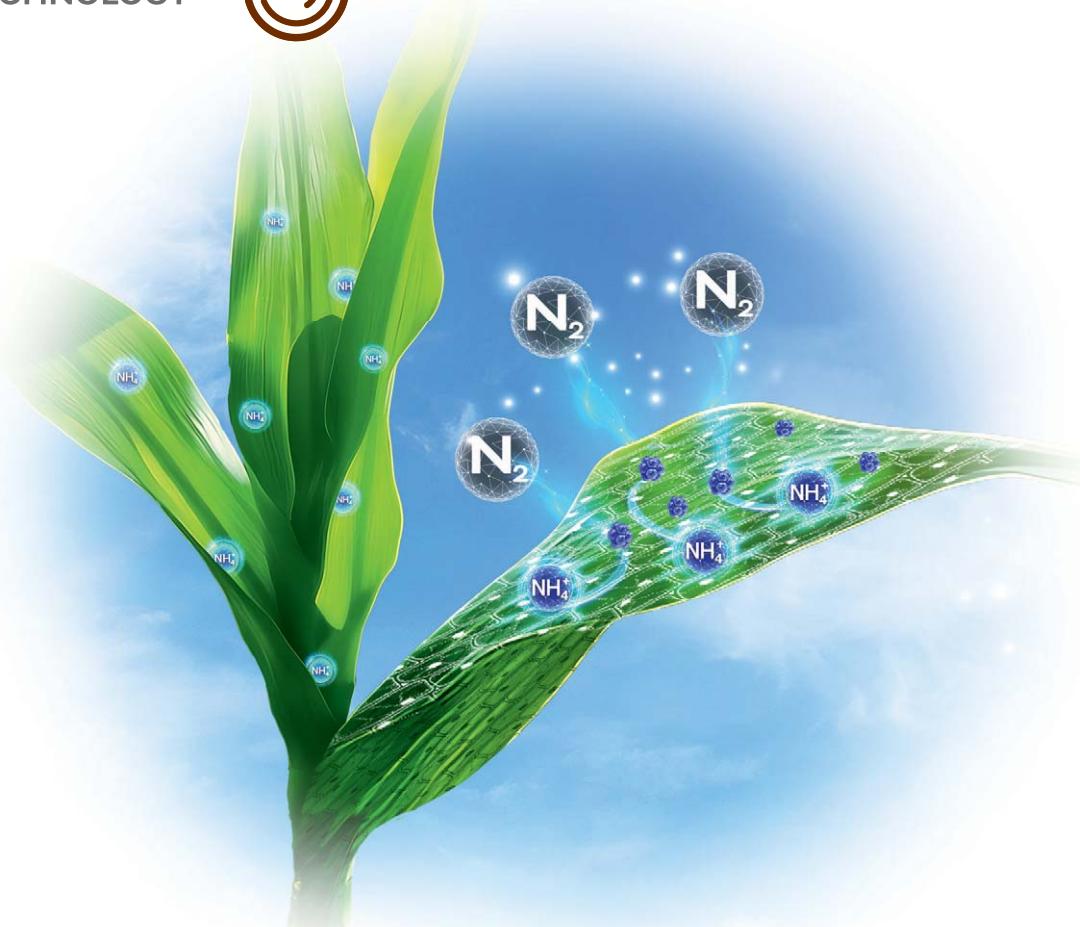


- Contain consortia of microbes obtained with the use of a **patented** environmental screening method
- Developed in cooperation with **reputable scientific centres**
- Demonstrate high **stability** of formulations thanks to the use of microbes in the form of spores
- Demonstrate high **effectiveness** confirmed by scientific research and agricultural practice
- Have a positive effect on plant **nutrition and health**
- Manufactured in **a modern biotechnology facility** with the highest standards of production



BACTIM[®] ENDOFIX

NUTRITION TECHNOLOGY



NITROGEN PRODUCTION DIRECTLY IN THE PLANT

FOLIAR NITROGEN FIXING TECHNOLOGY

BACTIM[®] ENDOFIX is a unique product based on bacteria *Paenibacillus polymyxa*, which penetrate into the internal plant tissues, supplying them with additional nitrogen and biostimulating substances. **BACTIM[®] ENDOFIX** provides plants with nitrogen in the form of easily assimilable ammonium ions throughout the growing season.

The major beneficial effects of using **BACTIM[®] ENDOFIX** are:

- improved nitrogen availability to plants throughout the growing season
- increased profitability of crops
- increased yield quantity and quality
- potential to reduce nitrogen fertilization up to 20%.



Available
package sizes:
1; 5 L

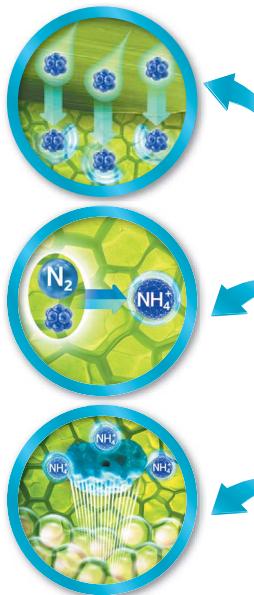
NUTRITION TECHNOLOGY

BACTIM® ENDOFIX

COMPOSITION OF THE BIOPREPARATION

Contains a selected strain of bacteria
Paenibacillus polymyxa – at least 10⁸ cfu/mL

BACTIM® ENDOFIX – mode of action:



PENETRATES THROUGH THE STOMATA
INTO THE INTERIOR OF PLANTS,
COLONIZING THE INTERCELLULAR
SPACES OF LEAVES, STEMS, ROOTS.

QUICKLY AND EFFICIENTLY CONVERTS
ATMOSPHERIC NITROGEN INTO EASILY
ASSIMILABLE AMMONIUM IONS OVER A
WIDE TEMPERATURE RANGE OF 6–36°C.

THE ADDITIONAL NITROGEN IS USED
BY THE PLANT TO BUILD PROTEINS
AND SYNTHESIZE AMINO ACIDS

BACTIM® ENDOFIX – direction of use:

BACTIM® ENDOFIX is applied to agricultural and horticultural crops by foliar spraying at a rate of 400 mL per hectare. The application should be made after the beginning of the vegetation period. **BACTIM® ENDOFIX** can be used in combination with foliar fertilisers and most agrochemicals.

CROPS

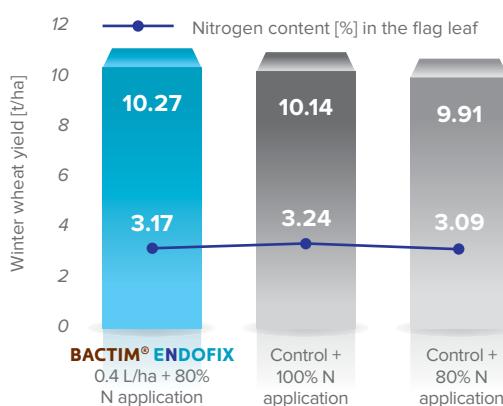


Foliar application

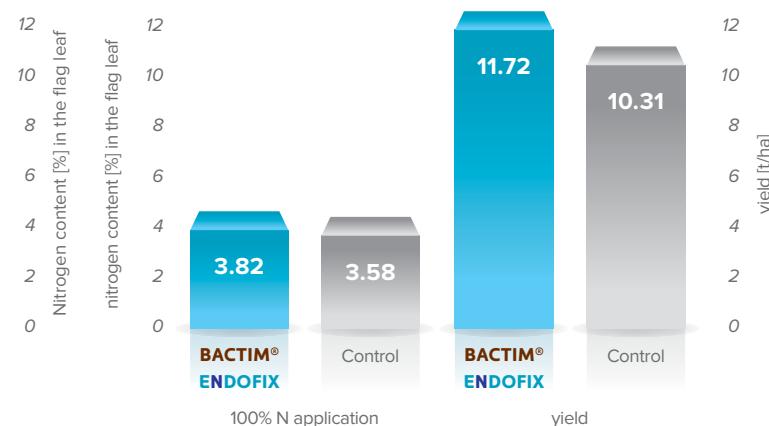


BACTIM® ENDOFIX – effectiveness confirmed by research:

Effect of **BACTIM® ENDOFIX** application on nitrogen content in the flag leaf – 5 weeks after application, and yield of winter wheat. Field trial, Poland.



Effect of **BACTIM® ENDOFIX** application on nitrogen content [%] in the leaves of maize 5 weeks after application, and effect on maize yield [t/ha]. Field trial, Poland.





NEW
TECHNOLOGY

NUTRITION TECHNOLOGY

BACTIM® SOIL

NUTRITION TECHNOLOGY



EFFECTIVE SOIL REGENERATION

BACTIM® SOIL is a bioproduct that reduces soil degradation, promotes soil regeneration and accelerates the decomposition of plant residues. Thanks to **SAFE NPK TECHNOLOGY**, the product also increases the availability of nitrogen, phosphorus and potassium for plants.

The major beneficial effects of using **BACTIM® SOIL** are:

- regeneration of degraded soils and increase of soil biochemical activity
- reduction of negative processes occurring in the soil, e.g., leaching of nutrients, fixation of phosphorus
- improved soil physico-chemical properties
- better utilization of nitrogen, phosphorus and potassium from the soil by plants
- accelerated decomposition of post-harvest residues
- increased effectiveness of fungicide protection programmes



Available package sizes:
5; 20 L

COMPOSITION OF THE BIOPREPARATION

BACTIM® SOIL

Includes selected strains of *Bacillus spp.* – concentration of at least 5×10^8 cfu/mL

BACTIM® SOIL – direction of use:

BACTIM® SOIL is recommended in post-harvest and pre-sowing soil treatments. The product can be also applied after crop emergence in the early stages of plant development.

CROPS

Soil application



Single dose:
1–2 L/ha



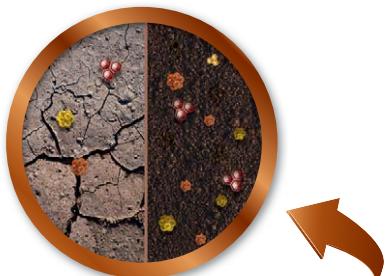
Recommended amount of working solution:
300–400 L/ha

BACTIM® SOIL – mode of action:



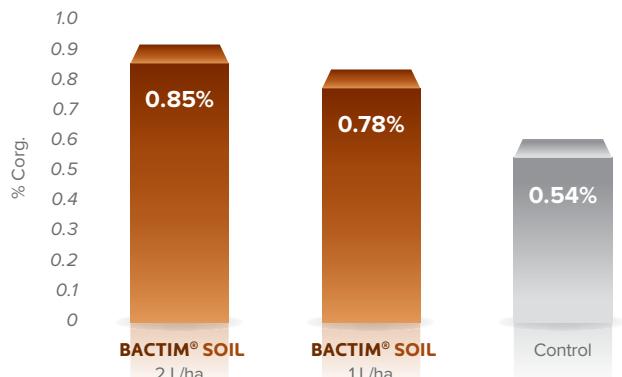
NUTRITION TECHNOLOGY

BACTIM® SOIL – effectiveness confirmed by research:



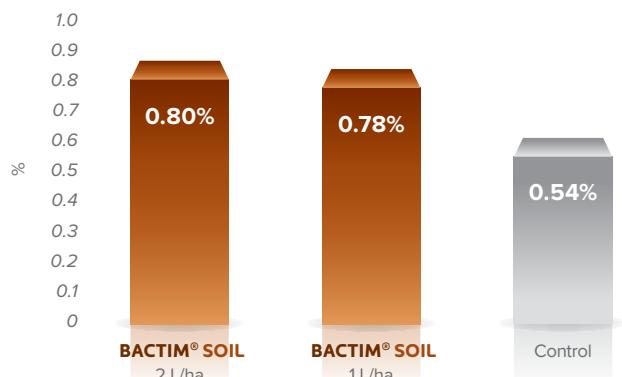
REGENERATION
OF DEGRADED SOIL

Humus content in soil [%Corg.] – one month after winter wheat sowing, Poland.



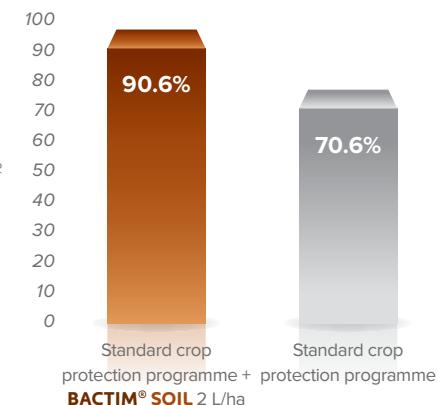
BETTER UTILIZATION
OF NUTRIENTS

Phosphorus content in aboveground parts of oilseed rape 3 weeks after sowing [%], Poland.



BETTER PLANT
HEALTH STATUS

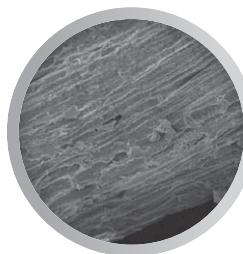
Efficacy of protection programme against eyespot [%].



The process of humification of wheat straw visible under a scanning microscope (magnification x1000), 30 days after application of products intended for humification of plant residues.

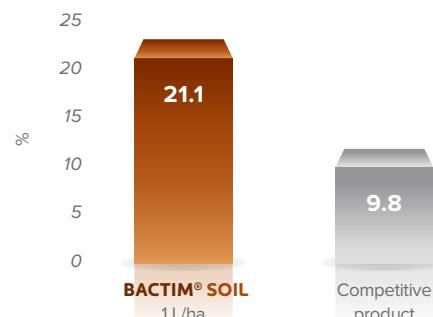


Surface of a wheat straw after BACTIM® SOIL application. **Visible spaces** between plant cells, indicating a **significant progress** of decomposition.



Surface of a wheat straw after application of a **competitive product**. **Visible dense plant cells**, indicating the lack of decomposition.

Effect of BACTIM® SOIL application on the process of wheat straw decomposition [%] 30 days after application of products intended for humification of plant residues.



NEW**NUTRITION TECHNOLOGY**

BACTIM® SAFE PK

NUTRITION TECHNOLOGY



SOIL PHOSPHORUS AND POTASSIUM MOBILIZATION

BACTIM® SAFE PK is a microbiological product that contains selected *Bacillus spp.* bacteria. These bacteria enhance the efficiency of NPK fertilizer use due to their unique properties. It effectively solubilizes immobilized phosphorus and potassium, increasing their availability in a form accessible to plants.

The major beneficial effects of using BACTIM® SAFE PK are:

- more efficient use of applied NPK fertilizer
- improved soil structure and water retention
- prevention of nutrient re-immobilization caused by high or low soil pH
- improved plant growth and development.



Available package sizes: **5 kg**

COMPOSITION OF THE BIOPREPARATION

BACTIM® SAFE PK

Includes selected strains of
Bacillus spp. – 10⁹ cfu/mL

BACTIM® SAFE PK – direction of use:

Product is intended for foliar application. Use 200–300 liters of water per hectare to prepare the spray solution. Apply on moist soil, avoiding use with copper-containing products, and during intense sunlight. A medium or coarse spray is recommended for optimal application.

CROPS

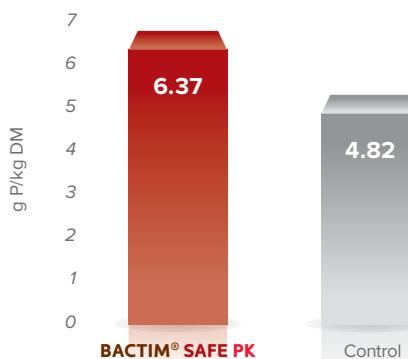


Foliar application

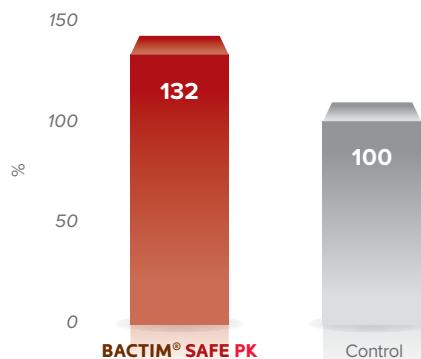


BACTIM® SAFE PK – effectiveness confirmed by research:

Effect of BACTIM® SAFE PK on phosphorus content in maize
[g P/kg d. m.]



Effect of BACTIM® SAFE PK on phosphorus content in plants [%].



BACTIM® TERRASTART

NUTRITION TECHNOLOGY



STARTER FERTILISER ENRICHED WITH BENEFICIAL BACTERIA

BACTIM® TERRASTART is a unique combination of granular fertiliser and the **SAFE-P** formula in one product. **BACTIM® TERRASTART** is intended for application during seed sowing, seedling planting and preparing substrates for sowing and planting.

The major beneficial effects of using **BACTIM® TERRASTART** are:

- protection of applied **phosphorus** against fixation in soil
- better seedling supply with **phosphorus** and zinc
- effective plant biostimulation
 - accelerated initial growth of seedlings
 - better root system development
 - increased efficiency of nutrient utilization from soil.

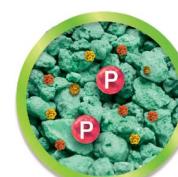
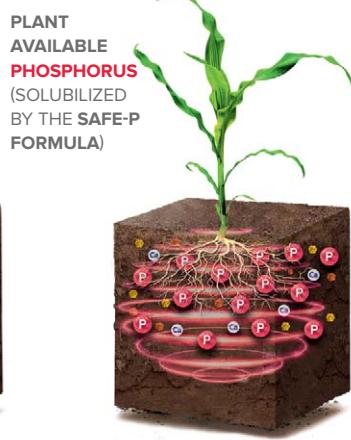
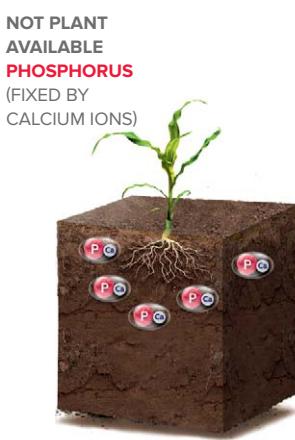


Available package sizes: **15 kg**

NUTRIENT CONTENT [%/m/m]					
	N	P ₂ O ₅	MgO	SO ₃	Zn
BACTIM® TERRASTART	10.0	35.0	2.0	12.5	2.0

enriched with **SAFE-P** formula

BACTIM® TERRASTART – mode of action:



HIGH CONTENT OF MICROBES SOLUBILIZING PHOSPHORUS



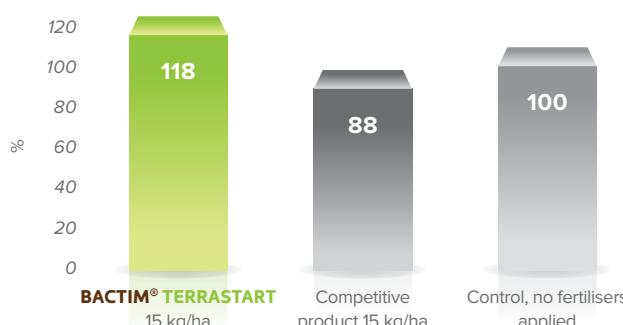
PROTECTION OF APPLIED PHOSPHORUS AGAINST FIXATION IN SOIL



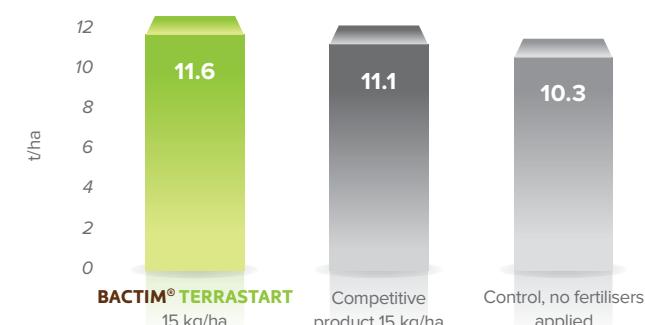
BETTER ROOT SYSTEM DEVELOPMENT

BACTIM® TERRASTART – effectiveness confirmed by research:

Range of maize root system in compared to the control [%].
Research Centre for Cultivar Testing, Experimental Station in Słupia, Poland.



Yield of maize seeds at 15% moisture [t/ha].
Research Centre for Cultivar Testing, Experimental Station in Węgrzce, Poland.





BACTIM® NUTRI N+

NUTRITION TECHNOLOGY



SOIL NITROGEN FIXING BIOSTIMULANT

BACTIM® NUTRI N+ is a biostimulant increasing the nitrogen supply of plants and containing an efficient strain of bacteria *Azotobacter sp.* Application of **BACTIM® NUTRI N+** improves the nitrogen supply of plants. Bacteria *Azotobacter sp.* efficiently fix atmospheric nitrogen. This contributes to the increase in the content of mineral nitrogen in the soil, which can be used by plants. **BACTIM® NUTRI N+** positively affects the nutritional status of plants in this element as well as the quality and quantity of yield.

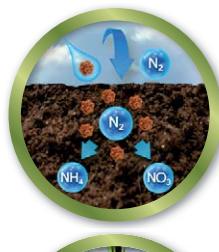


COMPOSITION OF THE BIOPREPARATION

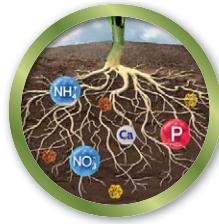
BACTIM® NUTRI N+

Includes selected strain of *Azotobacter sp.* – concentration of at least 10^8 cfu/mL

The major beneficial effects of using **BACTIM® NUTRI N+** are:



BETTER NITROGEN SUPPLY OF PLANTS

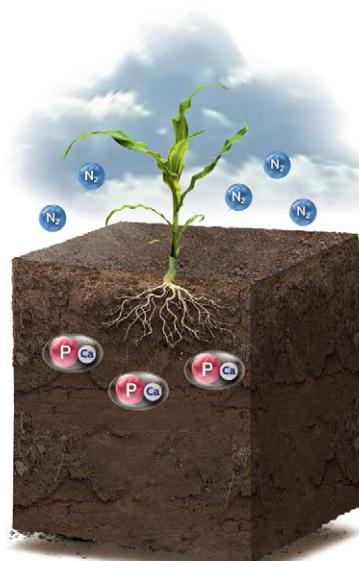


BETTER PLANT GROWTH AND DEVELOPMENT

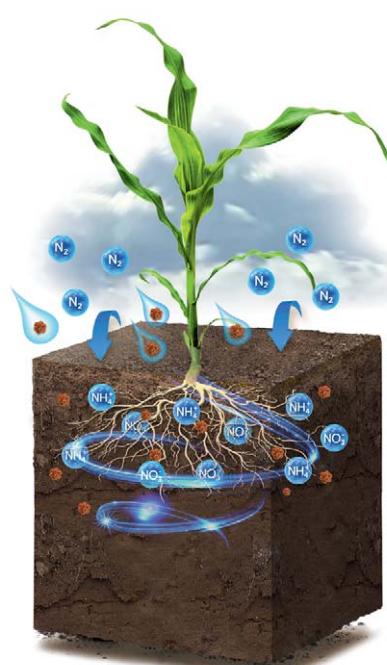
Bacteria *Azotobacter sp.* contained in **BACTIM® NUTRI N+** effectively fix atmospheric nitrogen, increasing the content of plant available nitrogen in soil. A higher content of nitrogen in soil has a positive effect on the nutritional status of plants in this element and on the yield quantity and quality.

Bacteria contained in **BACTIM® NUTRI N+** synthesize and secrete into the soil biologically active compounds, e.g., enzymes, plant hormones, siderophores, which have a beneficial effect on plant growth and development.

BACTIM® NUTRI N+ – mode of action



STANDARD CULTIVATION



STANDARD CULTIVATION

+

BACTIM® NUTRI N+

NUTRITION TECHNOLOGY

BACTIM® NUTRI N+ – direction of use:

BACTIM® NUTRI N+ may be applied during presowing soil cultivation, preparing soil for sowing of all spring and winter crops. The product may be also applied after plant emergence in the early stages of plant development.

CROPS



Soil application



Single dose:
400 mL/ha



Recommended
amount of working
solution:
300–400 L/ha

BACTIM® NUTRI N+ – effectiveness confirmed by research:

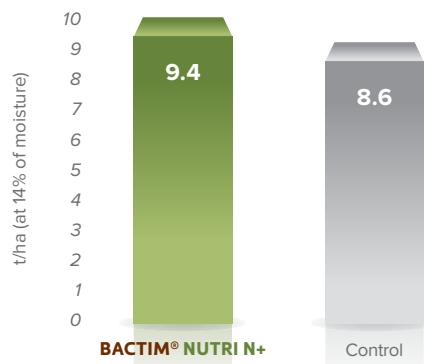
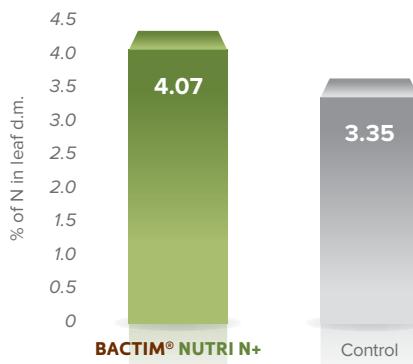
Content of nitrogen in wheat leaves [%] – analysis: third leaf unfolded.

INTERMAG trial, Poland.

Application before sowing.

Yield of winter wheat [t/ha].

Research Centre for Cultivar Testing, Experimental Station in Pawłowice, Poland.
One application before sowing.



The average number of wheat ears [pcs./m²].

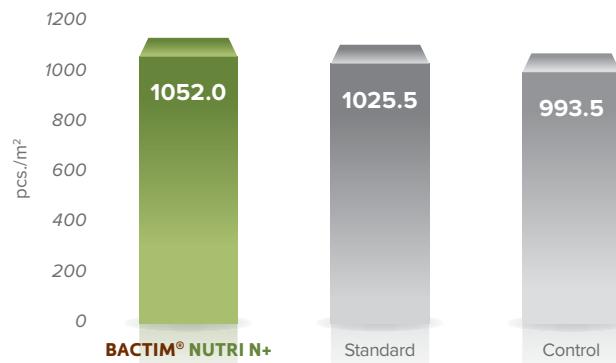
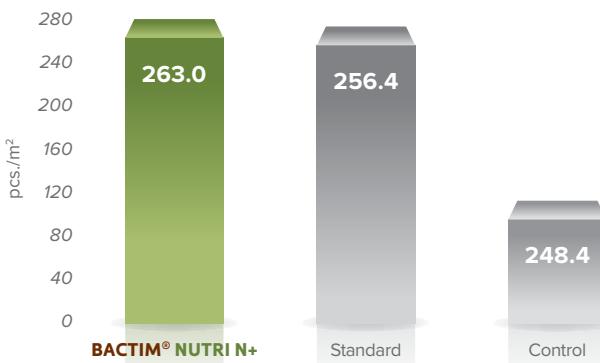
Experimental Station in Słupia, Poland.

Applications: before sowing and at the end of tillering.

The average number of wheat tillers [pcs./m²].

Experimental Station in Słupia, Poland.

Applications: before sowing and at the end of tillering.





BACTIM® NUTRI P+

NUTRITION TECHNOLOGY

EFFECTIVE PHOSPHOROUS SOLUBILIZER

BACTIM® NUTRI P+ is a bioproduct increasing the phosphorus supply of plants, containing efficient strains of bacteria *Bacillus spp.* Application of **BACTIM® NUTRI P+** improves the phosphorus supply of plants. Bacteria *Bacillus spp.* efficiently solubilize insoluble forms of phosphorus in soil. This contributes to the increased content of the plant available phosphorus in the soil, which can be used by plants. **BACTIM® NUTRI P+** positively affects the nutritional status of plants in this element as well as the quality and quantity of yield.

COMPOSITION OF THE BIOPREPARATION

BACTIM® NUTRI P+

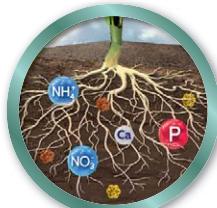
Includes selected strains of *Bacillus spp.* – concentration of at least 5×10^8 cfu/mL



The major beneficial effects of using **BACTIM® NUTRI P+** are:



BETTER PHOSPHORUS SUPPLY OF PLANTS

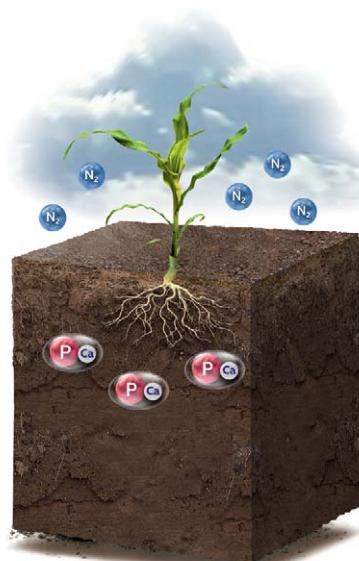


BETTER PLANT GROWTH AND DEVELOPMENT

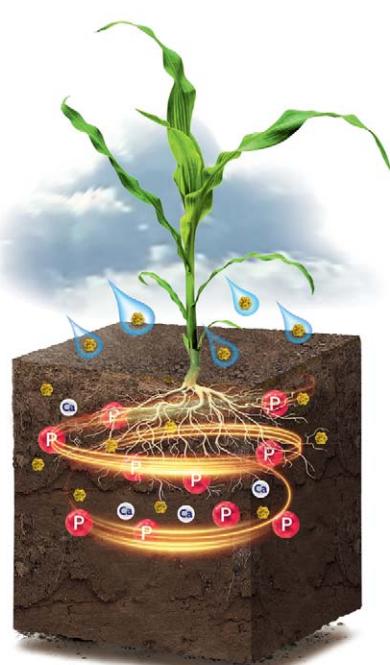
Bacteria *Bacillus spp.* contained in **BACTIM® NUTRI P+** solubilize insoluble phosphorus forms in soil. Increasing the content of plant available phosphorus in soil improves the plant's nutritional status in this element, which results in better root growth and yielding organs. Additionally, the bacteria protect phosphorus from soil fertilisers against chemical fixation in soil.

Bacteria contained in **BACTIM® NUTRI P+** synthesize and secrete into the soil biologically active compounds, e.g., enzymes, plant hormones, siderophores, which have a beneficial effect on plant growth and development.

BACTIM® NUTRI P+ – mode of action



STANDARD CULTIVATION



STANDARD CULTIVATION
+
BACTIM® NUTRI P+

NUTRITION TECHNOLOGY

BACTIM® NUTRI P+ – direction of use:

BACTIM® NUTRI P+ may be applied during presowing soil cultivation, preparing soil for sowing of all spring and winter crops (the product may be used in all practices of preparing soil for sowing and sowing). The product may be also applied after plant emergence in the early stages of plant development.

CROPS



Soil application

Single dose:
2 L/ha



Recommended amount of working solution:
300–400 L/ha

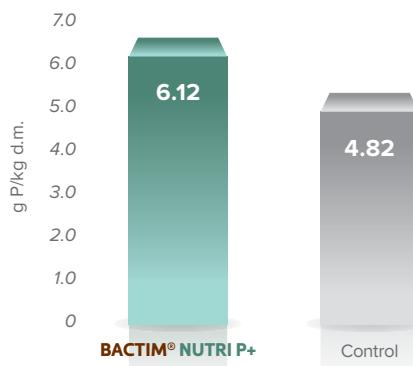
BACTIM® NUTRI P+ – effectiveness confirmed by research:

Content of phosphorus in maize leaves [g P/kg d.m.].

– analysis: third leaf unfolded.

INTERMAG trial, Poland.

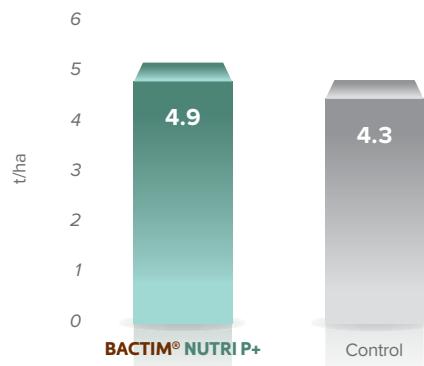
Application before sowing.



Yield of winter oilseed rape [t/ha].

Farm trial, Poland.

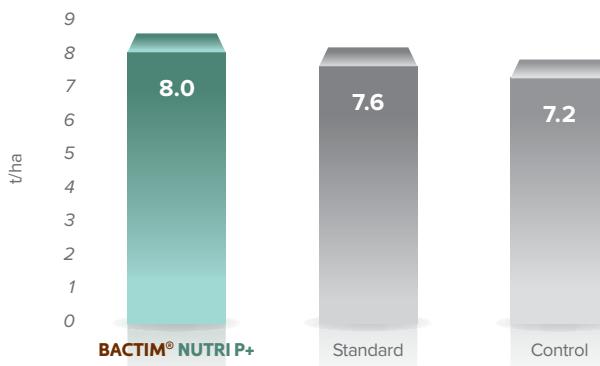
One application in the spring, right after the start of growing season.



Yield of wheat [t/ha].

Research Centre for Cultivar Testing, Experimental Station in Pawłowice, Poland.

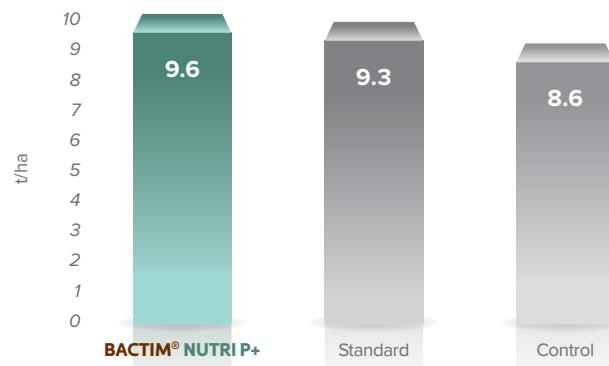
Application: before sowing and at the end of tillering.



Yield of winter wheat [t/ha].

Research Centre for Cultivar Testing, Experimental Station in Pawłowice, Poland.

Application: before sowing and at the beginning of spring vegetation.





BACTIM® FERTI

GUARD TECHNOLOGY



MICROBIOLOGICAL SUPPORT FOR FERTIGATED CROPS

PLANT HEALTH PROBIOTIC FOR FERTIGATION

BACTIM® FERTI is a microbial bioproduct designed for fertigated crops. Its unique formula, based on carefully selected microorganisms, creates a natural barrier in the soil around the plant's root system, reducing the harmfulness of soil-borne diseases. **BACTIM® FERTI** improves water and nutrient utilization and has a positive effect on soil properties.

The major beneficial effects of using **BACTIM® FERTI** are:

- positive effects on the health of fertigated crops
- reduced severity and harmfulness of soil diseases
- improved soil physical and chemical properties
- more efficient use of nutrients applied
- improved plant nutrition
- increased yield quantity and quality.

Available package sizes: **5; 20 L**



GUARD TECHNOLOGY

BACTIM® FERTI

COMPOSITION OF THE BIOPREPARATION

Includes selected strains of *Bacillus spp.* – concentration of at least 10^8 cfu/mL

BACTIM® FERTI – mode of action:



BACTIM® FERTI – direction of use:

The product should be used in fertigation. The first treatment should be made after planting the seedlings. The product can be applied either in the irrigation cycle or with the nutrient solution, depending on the preference and needs of the crop.

CROPS

Fertigation

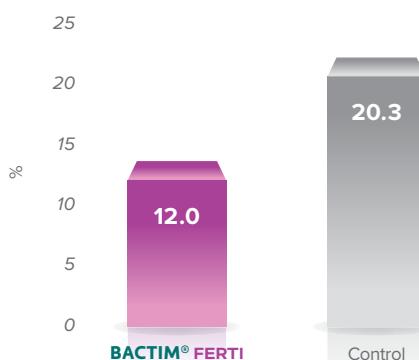


Single dose:
2 L/ha

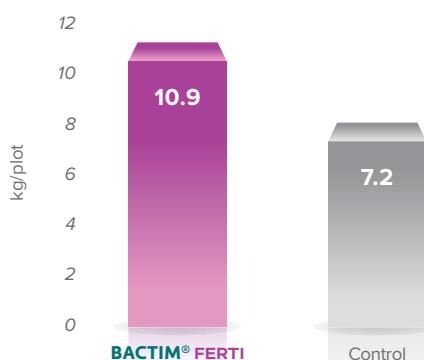
Recommended number of treatments:
2–4, every 3–4 weeks

BACTIM® FERTI – effectiveness confirmed by research:

Percentage of lettuce infected by fungus *Rhizoctonia solani*.
Institute of Horticulture, Poland



Yield of lettuce.
Institute of Horticulture, Poland.





BACTIM® HORTI

GUARD TECHNOLOGY



MIKROBIOLOGICAL SUPPORT FOR HORTICULTURAL CROPS

PLANT HEALTH PROBIOTIC FOR HORTICULTURAL CROPS

BACTIM® HORTI is a multifunctional microbial bioproduct for horticultural crops. Its formula not only improves plant health, but also increases yield potential. The product creates a microbiological barrier on the above-ground parts of plants, which naturally reduces the harmfulness of pathogenic organisms. The microorganisms contained in the product stimulate plant growth, increasing their vigor and yield potential.

The major beneficial effects of using **BACTIM® HORTI** are:

- positive effects on the health status of horticultural crops
- reduction in the harmfulness of pathogens that occur in above-ground parts of the plant
- improved plant condition and vigor
- increased crop yield and quality.

Available package sizes: **5; 20 L**



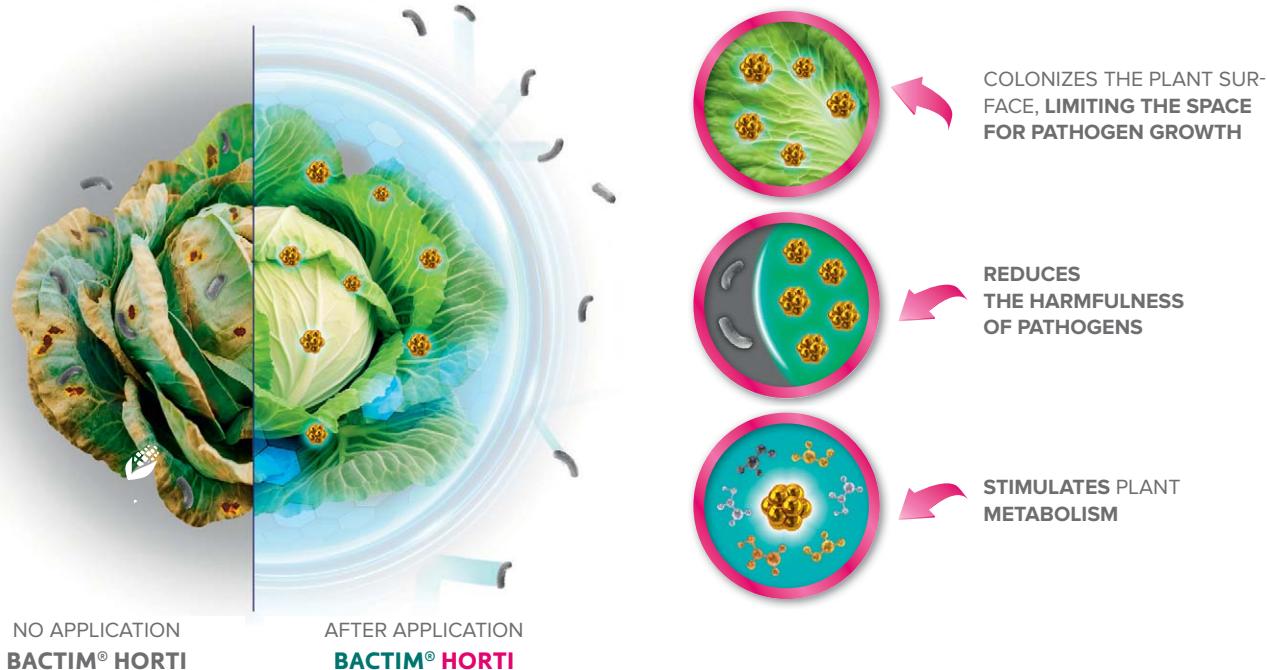
GUARD TECHNOLOGY

BACTIM® HORTI

COMPOSITION OF THE BIOPREPARATION

Includes selected strains of *Bacillus spp.* – concentration of at least 10^8 cfu/mL

BACTIM® HORTI – mode of action:



BACTIM® HORTI – direction of use:

The product should be applied by foliar spraying. The first application is best made at the early stage of leaf development.

CROPS     

Foliar application

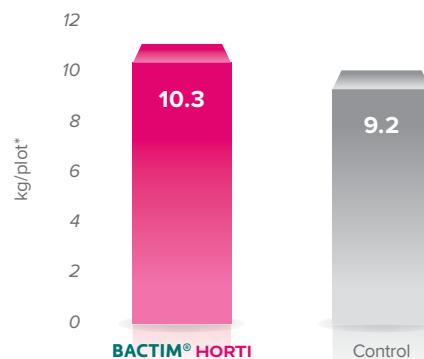
Single dose:
2 L/ha



Recommended number of treatments:
2–4, every 3–4 weeks

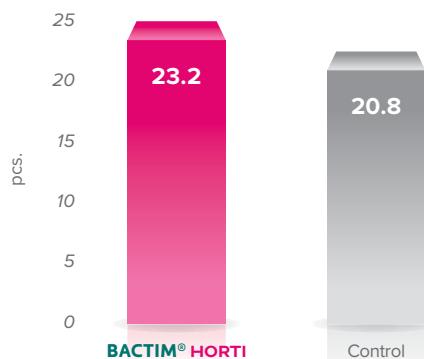
BACTIM® HORTI – effectiveness confirmed by research:

Commercial yield of strawberry.
Institute of Horticulture, Poland.



*experimental plot - 26 plants

Average number of strawberry fruits per plant.
Institute of Horticulture, Poland.



BACTIM® OMNIS

GUARD TECHNOLOGY



PLANT HEALTH PROBIOTIC FOR AGRICULTURAL CROPS

BACTIM® OMNIS is a multifunctional bioproduct intended for improving the composition of the microbiome of plant phyllosphere and rhizosphere by creating a microbial barrier on the plant, which in a natural way inhibits the development of pathogens. The product applied on soil or in the early stages of plant development has a biostimulating effect on plants by increasing their supply of some nutrients.

The major beneficial effects of using BACTIM® OMNIS are:

- increases plant health status
- reduces the intensity and harmfulness of diseases occurring on above-ground parts of plants and some soil-borne diseases
- improves plant vigor
- increases yield of crops.



Available package sizes: **1; 5; 20 L**

BACTIM® OMNIS

COMPOSITION OF THE BIOPREPARATION

Includes selected strains of *Bacillus spp.* – concentration of at least 10^8 cfu/mL

BACTIM® OMNIS – mode of action:

Bacteria contained in the product:



COLONIZE THE SURFACE OF PLANTS, FORMING A MICROBIOLOGICAL BARRIER



DEMONSTRATE ANTIBIOTIC PROPERTIES AGAINST PERPETRATORS OF PLANT DISEASES



PRODUCE SUBSTANCES HAVING BIOSTIMULATING EFFECT ON PLANT METABOLISM

BACTIM® OMNIS – direction of use:

BACTIM® OMNIS should be applied via foliar application. The product may be also applied via soil spraying before sowing. Number of treatments and application timings should be adjusted to the intensity of stress factors and sensitivity of varieties and species.

CROPS



Foliar application

Single dose:
2 L/ha

Recommended number of treatments:
2–5

BACTIM GUARD TECHNOLOGY

BACTIM® OMNIS – effectiveness confirmed by research:

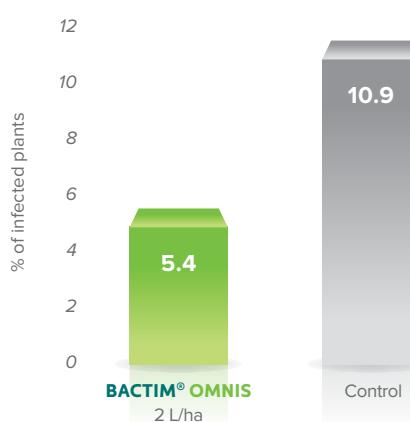
The results of the in vitro antibiotic test against common pathogens of cereals and oilseed rape:

Bacteria/ Pathogen	<i>Fusarium oxysporum</i>	<i>Fusarium poae</i>	<i>Fusarium avenaceum</i>	<i>Fusarium graminearum</i>	<i>Fusarium culmorum</i>	<i>Septoria tritici</i>	<i>Septoria nodorum</i>
BACTIM® OMNIS	+	++	++	+	++	+	++
Bacteria/ Pathogen	<i>Microdochium nivale</i>	<i>Rhizoctonia solani</i>	<i>Cladosporium cladosporioides</i>	<i>Pseudocercospo- rella herpotricho- ides</i>	<i>Alternaria brassicae</i>	<i>Sclerotinia sclerotiorum</i>	<i>Phoma lingam</i>
BACTIM® OMNIS	+	+	++	+	++	+	++

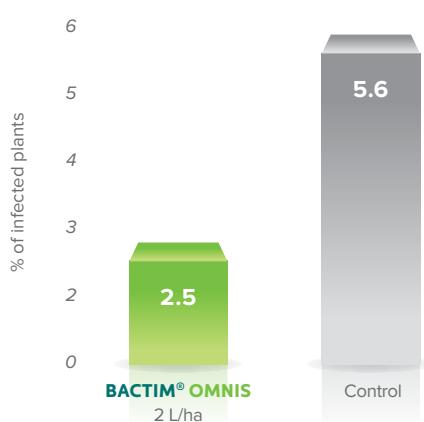
– negative effect of bacteria contained in **BACTIM® OMNIS** on perpetrator of disease

++ – highly negative effect of bacteria contained in **BACTIM® OMNIS** on perpetrator of disease

Average % of winter wheat plants infected by *Blumeria graminis*.
Institute of Plant Protection, Poland.



Average % of winter wheat plants infected by *Pyrenophora tritici-repentis*.
Institute of Plant Protection, Sośnicowice, Poland.



BACTIM® OMNIS maintains healthy and intensely green leaves. The product improves plant vigor and ensures better plant development thanks to the biostimulating effect.



BACTIM® OMNIS



Control



BACTIM® OMNIS



Control

NEW**GUARD TECHNOLOGY**

BACTIM® PANTOEAE CARE

GUARD TECHNOLOGY



MICROBIAL ENHANCER OF PLANT HEALTH

BACTIM® PANTOEAE CARE contains a high concentration of unique strains of *Pantoea spp.* bacteria, which are characterized by the ability to quickly colonize above-ground parts of plants, forming a natural barrier that limits the harmfulness of pathogens. Bacteria are able to produce active metabolites increasing the natural immunity of plants, resulting in improved health and development, yield and postharvest shelf life.

The major beneficial effects of using BACTIM® PANTOEAE CARE are:

- limited harmfulness of pathogens
- enhanced natural plant immunity
- improved plant health and development, increased yield and post-harvest shelf life.



Available package sizes: **500 g**

COMPOSITION OF THE BIOPREPARATION

BACTIM® PANTOEAE CARE

Pantoea agglomerans, Pantoea allii – 10^9 cfu/1 g

BACTIM® PANTOEAE CARE – direction of use:

The product is intended for use as a foliar spray – a fine or medium droplet treatment. Use unchlorinated water. Avoid applications in full sunlight, applications should be made in the morning or evening. Do not combine with copper and silver based products.

CROPS



Foliar application



BACTIM® PANTOEAE CARE – effectiveness confirmed by research:

Effect of **BACTIM® PANTOEAE CARE** on reducing the *Alternaria dauci* and *Erysiphe heraclei* (powdery mildew) infections in carrots.
Institute of Horticulture, Poland.

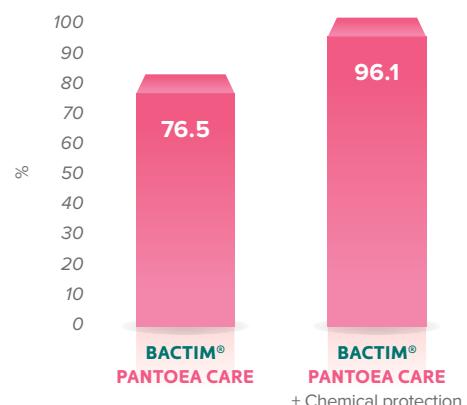


**BACTIM®
PANTOEAE CARE**



Control

Effect of **BACTIM® PANTOEAE CARE** on reducing the *Botrytis cinerea* (bunch rot, grey mold) infections in grapevine [%].
Institute of Horticulture, Poland.



NEW**GUARD TECHNOLOGY**

BACTIM® VERSUS

GUARD TECHNOLOGY



LEARN MORE

MICROBIAL ENHANCER OF PLANT HEALTH

BACTIM® VERSUS contains a high concentration of unique strains of *Bacillus* sp. and *Pantoea* sp. bacteria that work synergistically. The product limits the harmfulness of fungal and bacterial diseases, synthesizes biostimulating substances and increases the effectiveness of standard protection programmes.

The major beneficial effects of using BACTIM® VERSUS are:

- a natural barrier on plants that reduces the harmfulness of fungal and bacterial diseases
- better quality and quantity of yield due to biostimulating effect
- improved effectiveness of standard protection programmes.

Available package sizes: **5 L**

COMPOSITION OF THE BIOPREPARATION

BACTIM® VERSUS*Pantoea* sp., *Bacillus* sp. – 10^9 cfu/mL

BACTIM® VERSUS – direction of use:

The product is intended for use as a foliar spray – a fine or medium droplet treatment. Use unchlorinated water. Avoid applications in full sunlight, applications should be made in the morning or evening. Do not combine with copper and silver based products.

CROPS



Foliar application



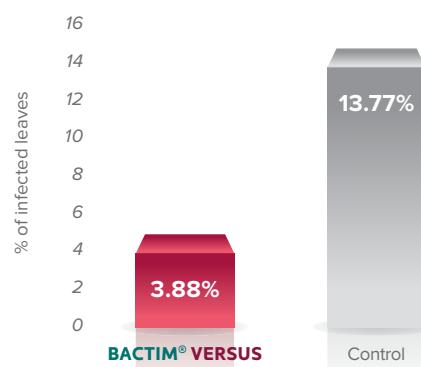
BACTIM® VERSUS – effectiveness confirmed by research:

Effect of **BACTIM® VERSUS** on reducing the *Sclerotinia sclerotiorum* (white mold) infections in lettuce.
Institute of Horticulture, Poland.

**BACTIM® VERSUS**

Control

Effect of **BACTIM® VERSUS** on reducing the *Alternaria sp.* (black spot) infections in cabbage [%].
Institute of Horticulture, Poland.





MYCOTIM VIGOR

MYCORRHIZA TECHNOLOGY



MYCORRHIZAL INOCULANT FOR HORTICULTURAL CROPS

MYCOTIM VIGOR contains a set of mycorrhizal fungi and rhizosphere bacteria, which support the growth and development of plants and also increase their health.

MYCOTIM VIGOR is particularly recommended for use in the cultivation of vegetables, fruit trees and shrubs. It is also recommended for use in the production of vegetative seedlings, watering of seedlings and cultivation under cover.

The major beneficial effects of using **MYCOTIM VIGOR** are:

- improvement in nutrient and water supply to plants
- enhancement of soil's physical and chemical properties
- reduction in plant susceptibility to abiotic and biotic stresses
- increase in both crop quality and quantity
- promotion of microbial activity and enhancement of soil biodiversity.



Available package sizes: **1 kg**

COMPOSITION OF THE BIOPREPARATION

MYCOTIM VIGOR

Arbuscular mycorrhizal fungi (AMF)

EFFECTIVENESS OF MYCORRHIZATION (%)

60±5

MYCOTIM VIGOR does not contain genetically modified microorganisms. The microorganisms contained in the product come from the natural soil environment.

MYCOTIM VIGOR – direction of use:

The biopreparation can be applied by spraying the soil before sowing or planting, or through watering or fertigation. It is also recommended for watering seedlings after transplanting into seedling trays or pots.

CROPS



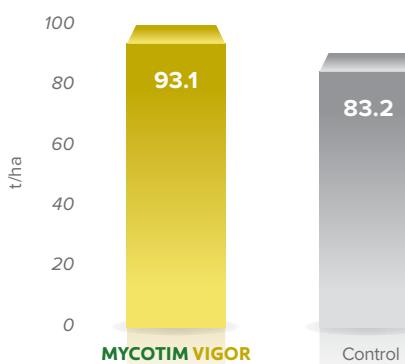
Soil application / fertigation

Single dose:
2 kg/ha

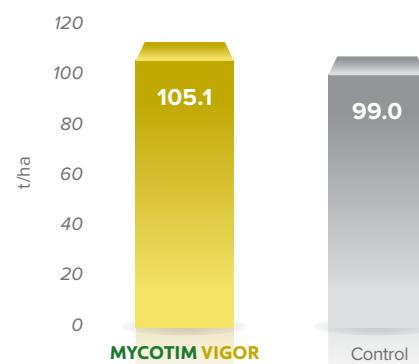
Recommended
number
of treatments:
1–4

MYCOTIM VIGOR – effectiveness confirmed by research:

Average commercial yield of pepper [t/ha].
Experimental Station in Węgrzce, Poland.



Average commercial yield of tomato [t/ha].
Experimental Station in Węgrzce, Poland.



NEW**GUARD + MYCORRHIZA TECHNOLOGY**

MYCOTIM NEMABLOCK

GUARD TECHNOLOGY



LEARN MORE

MYCORRHIZAL INOCULANT REDUCING HARMFULNESS OF NEMATODES

MYCOTIM NEMABLOCK is a bioproduct containing unique consortium of mycorrhizal fungi and rhizosphere bacteria. The product is recommended for cultivations exposed to nematodes in order to limit their harmfulness and support plant growth and development.

The major beneficial effects of using **MYCOTIM NEMABLOCK are:**

- reduced harmfulness of nematodes
- increased plant resistance to root system diseases
- better supply of nutrients and water to plants
- improved physicochemical properties of the soil
- higher yield and quality of vegetables and fruits crops.



Available package sizes: **1 kg**

COMPOSITION OF THE BIOPREPARATION

MYCOTIM NEMABLOCK

Arbuscular mycorrhizal fungi (AMF)

EFFECTIVENESS OF MYCORRHIZATION (%)

80±5

MYCOTIM NEMABLOCK does not contain genetically modified microorganisms. The microorganisms contained in the product come from the natural soil environment.

MYCOTIM NEMABLOCK – direction of use:

MYCOTIM NEMABLOCK is particularly recommended for watering or fertigation in vegetable and ornamental crops, as well as potatoes and fruit species in locations exposed to the occurrence of nematodes.

CROPS



Soil treatments / Fertigation



Single dose:
2 kg/ha



Recommended
number
of treatments:
2-4

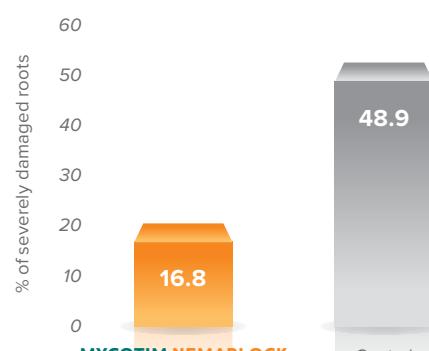
MYCOTIM NEMABLOCK – effectiveness confirmed by research:

Effect of **MYCOTIM NEMABLOCK** application in limiting potato tuber damage caused by nematodes [%].



Efficacy: **89%**

Effect of **MYCOTIM NEMABLOCK** application in limiting carrot root damage caused by nematodes [%].



Efficacy: **66%**



PRODUCTS FOR SEEDS

- Innovative formulations intended for **professional seed treatment** and **seed treatment on farms**
- Based on over **20 years** of experience and cooperation with the **seed industry** (PRIMSEED® brand)
- **Effectiveness** confirmed through scientific research and agriculture practice
- **Visible positive effect** of application since the beginning of plant growth
- Complex **nutrition and biostimulation** since the plant emergence stage



PRIMSEED® MULTI

SEED FERTILISER

PRIMSEED® MULTI is a specialised mineral fertiliser intended for seed treatment.

PRIMSEED® MULTI provide macro- and micronutrients in appropriate quantities and ratios, adapted to the needs of germinating seeds. The nutrients applied to the seeds' surfaces are used during germination to enhance plant health and initial development. PRIMSEED® MULTI colors the treated seeds, thus enabling better identification of seed material.

The major beneficial effects of PRIMSEED® MULTI include the following:

- the product is enriched with a **seed biostimulating complex** that intensifies root and seedling development, which positively influences resistance to drought.
- reduced dust while transferring seeds to the seed drill.
- intensive colour of treated seeds
- high stability of suspension.



Available package sizes:
1; 5; 10; 20 L

Seed treatments



PRIMSEED® MULTI – direction of use:

PRIMSEED® MULTI is intended for preparation of sowing material. In addition, it colors the treated seeds, thereby improving identification.

CROPS



Effect of PRIMSEED® MULTI:



Fungicide treatment
+ PRIMSEED® MULTI



Fungicide treatment



Fungicide treatment
+ PRIMSEED® MULTI

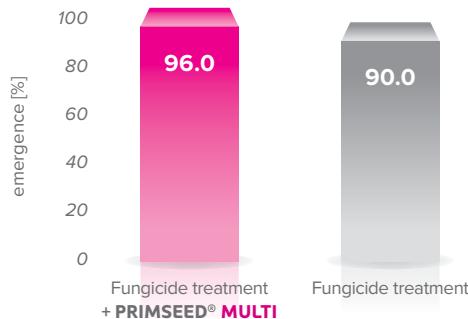


Fungicide treatment

PRIMSEED® MULTI – effectiveness confirmed by research:

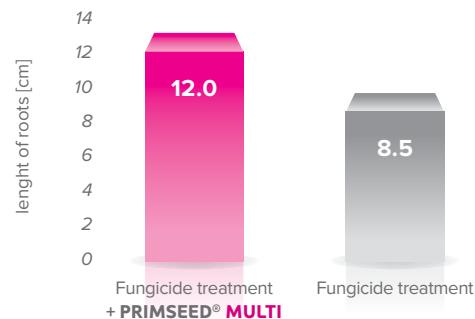
The effect of seed treatment with PRIMSEED® MULTI on the emergence of winter wheat [t/ha].

Romania.



The effect of seed treatment with PRIMSEED® MULTI on the length of roots of winter wheat [cm].

Romania.





PRIMSEED® BIOM CEREALS

MICROBIOLOGICAL SEED TREATMENT PRODUCT THAT INCREASES PLANT HEALTH

PRIMSEED® BIOM CEREALS is a multifunctional preparation containing microorganisms that is intended to treat grain and maize seeds during seed preparation.

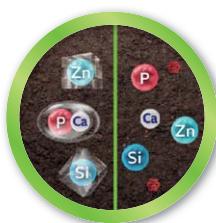
PRIMSEED® BIOM CEREALS improves the composition of the rhizosphere of seedlings and the immediate environment of germinating seeds in the following ways:

- Developing a barrier to the development of pathogens
- Generating a biostimulating effect
- Increasing the supply of nutrients.



Available package sizes:
1; 5 L

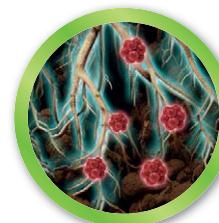
The greatest benefits of using PRIMSEED® BIOM CEREALS:



INCREASES
CONTENT OF
AVAILABLE FORMS
OF NUTRIENTS IN
THE SOIL



INTENSIFIES
ROOT SYSTEM
DEVELOPMENT AND
PLANT GROWTH
AFTER EMERGENCE



FORMS NATURAL
BARRIER AROUND
THE ROOT SYSTEM

PRIMSEED® BIOM CEREALS – direction of use:

PRIMSEED® BIOM CEREALS is recommended for the cultivation of cereals and maize crops for seed treatment.

CROPS



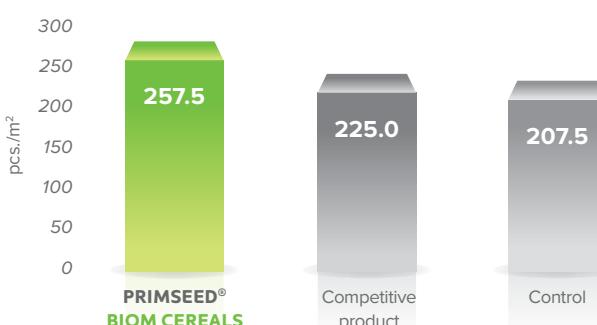
Seed treatments



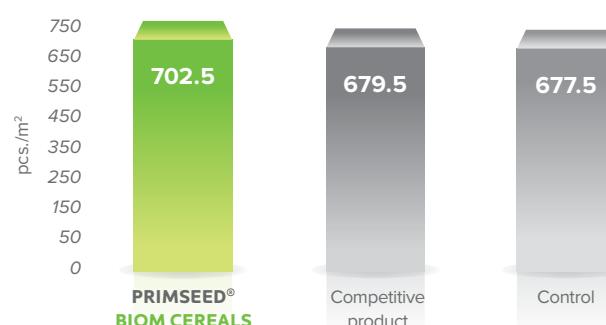
Dose:
0.2–0.3 L
+ 0.8–0.9 L of water
/ 100 kg of seeds

PRIMSEED® BIOM CEREALS – effectiveness confirmed by research:

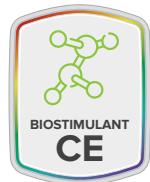
Effect of **PRIMSEED® BIOM CEREALS** on average number of winter wheat plants per 1 m², 21 days after sowing [pcs./m²].
Poland.



Effect of **PRIMSEED® BIOM CEREALS** on average number of ears of winter wheat plants per 1 m² [pcs./m²].
Poland.



PRODUCTS FOR SEEDS



LEARN MORE

PRIMSEED® BIOM SOYBEAN

BRADYRHIZOBIUM SOYBEAN SEED INOCULANT

PRIMSEED® BIOM SOYBEAN is an inoculant for soybean seed treatment during seed preparation, containing selected and highly effective strains of *Bradyrhizobium* bacteria.

PRIMSEED® BIOM SOYBEAN provides:

- uniform and durable coating of soybeans - biopolymer formulation additives improve adhesion of microorganisms to soybeans
- effective nodule formation on the soybean root system, even under poor climatic and soil conditions - the product enhances the process of root system infection by nodule bacteria.

PRIMSEED® BIOM SOYBEAN is recommended for use with **PLONVIT® LEGUMES** foliar fertiliser, which contains ingredients that support the atmospheric nitrogen fixation process.

	COMPOSITION	CONTENT
PRIMSEED® BIOM SOYBEAN	<i>Bradyrhizobium japonicum</i> <i>Bradyrhizobium elkanii</i>	at least 10 ⁹ cfu/mL

Available package sizes: **0.5; 5 L**



The greatest benefits of using PRIMSEED® BIOM SOYBEAN:



UNIFORM AND DURABLE
SEED COATING



EFFECTIVE
FORMATION
OF NODULES
ON THE ROOT
SYSTEM



EFFICIENT FIXATION
OF ATMOSPHERIC
NITROGEN

PRIMSEED® BIOM SOYBEAN – direction of use:

PRIMSEED® BIOM SOYBEAN is intended for the treatment of soybean seeds.

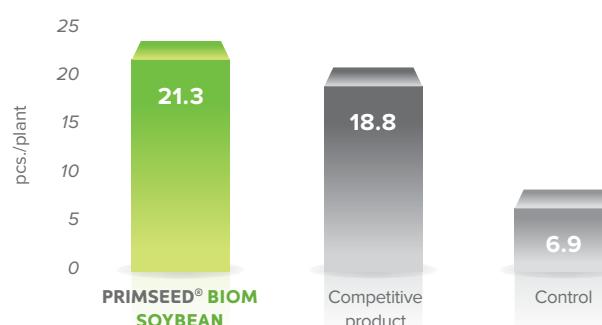
CROPS

Seed treatments

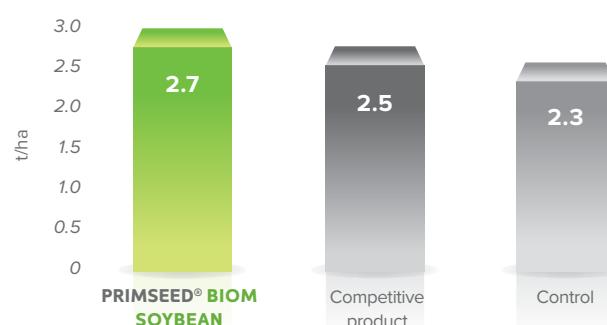


PRIMSEED® BIOM SOYBEAN – effectiveness confirmed by research:

Effect of PRIMSEED® BIOM SOYBEAN on average number of nodules per plant [pcs./plant].
Ukraine.



Effect of PRIMSEED® BIOM SOYBEAN on soybean yield [t/ha].
Ukraine.





PRIMSEED® NOD PEA

PRODUCT INTENDED FOR THE SEED TREATMENT OF PEA, BROAD BEAN, VETCH AND HORSE BEAN

PRIMSEED® NOD PEA is a product intended for seed treatment of pea, broad bean, vetch and horse bean. The product effectively stimulates the process of root nodulation, eliminating unfavourable environmental factors that can affect the nodulation process.

PRIMSEED® NOD PEA contains signaling substances – such as chitolipooligosaccharides, which ensures the following:

- increasing the effectiveness of the nodulation
- increasing the efficacy of fixing atmospheric nitrogen
- increasing the yield.

The greatest benefits of using PRIMSEED® NOD PEA:



Available package size: **0.1 L**



**BETTER
SEED GERMINATION**

**EFFICIENT
NODULATION**

**HIGHER
YIELD**

PRIMSEED® NOD PEA – direction of use:

PRIMSEED® NOD PEA is recommended for cultivation of pea, broad bean, vetch and horse bean for seed treatment.

CROPS



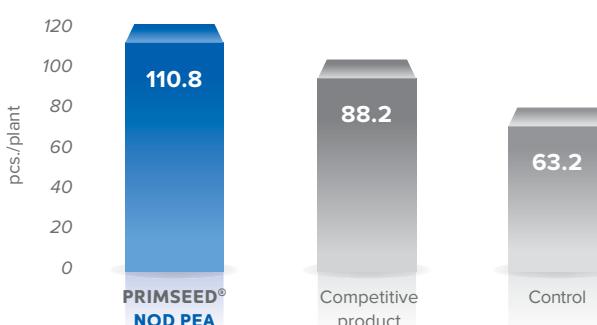
Seed treatments



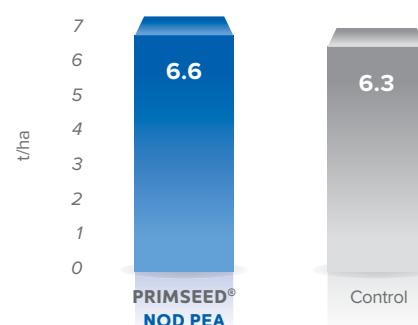
Dose:
1 ml
+ 1 L of water
/ 100 kg of seeds

PRIMSEED® NOD PEA – effectiveness confirmed by research:

Effect of PRIMSEED® NOD PEA application on average number of nodules [pcs./plant].
Poland.



Effect of PRIMSEED® NOD PEA application on pea yield [t/ha].
Poland.





ACTIVATORS

- **Unique combination** of nutrients and biostimulating compounds
- **Activation** of nutrient uptake **in stress conditions** (cold, drought, etc.)
- **Very fast** action thanks to INT technology
- **Positive** effect on yield confirmed by research
- Excellent **compatibility** with other agrochemicals

ACTIVATORS



ENERGY ACTIVATOR

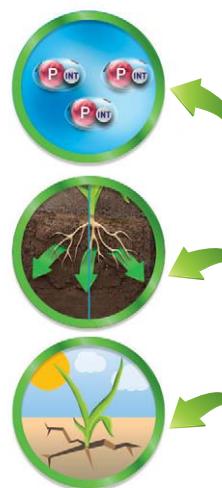
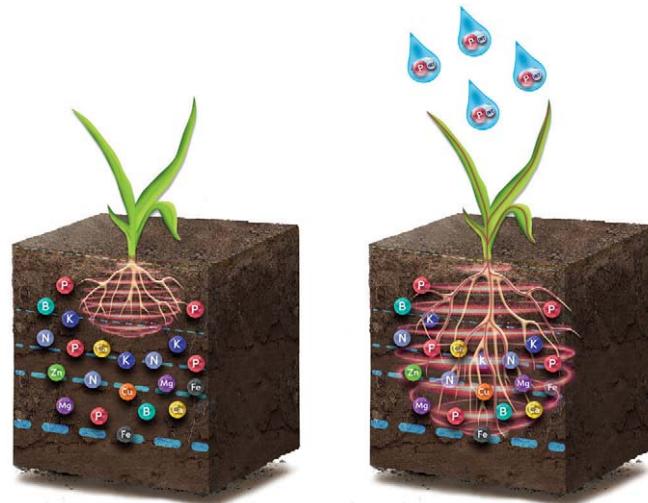
GROWON® is a foliar activator designed for a quick supply of phosphorus to plants and through this, for producing the energy needed for proper plant growth and development. **GROWON®** was developed using INT Technology, which makes this activator particularly effective. **GROWON®** is invaluable in the conditions of a plant's poor phosphorus uptake, particularly in low soil and air temperatures, and in acidic and alkaline soils.

GROWON® – composition:

NUTRIENT CONTENTS [g/L]				
	N	P ₂ O ₅	B	Zn
GROWON®	71	500	1.4	1.4



The greatest benefits of using **GROWON®** are:



Available package sizes:
1; 5; 10; 20; 1000 L

GROWON® – direction of use:

GROWON® is recommended in the cultivation of all types of agricultural and horticultural crops for foliar application. Invaluable in the conditions of a plant's poor phosphorus uptake, particularly in low soil and air temperatures, and in acidic and alkaline soils.

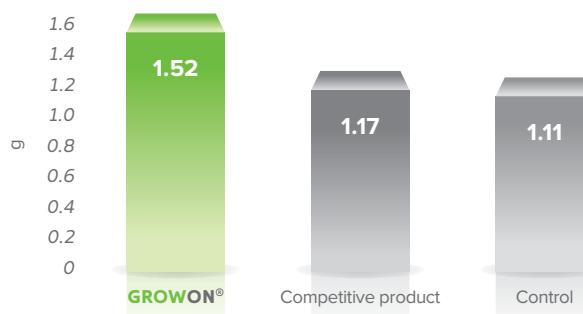
CROPS

Foliar treatments



GROWON® – effectiveness confirmed by research:

Effect of **GROWON®** application on the average weight of pepper seedlings root [g]. Effect of **GROWON®** application on yield of winter oilseed rape [t/ha]. Poland.



ACTIVATORS



LEARN MORE

CALCIUM ACTIVATOR

OPTYCAL® is an innovative, water-soluble calcium activator for foliar application, improving the crop's size, quality and storage properties. It ensures an optimal supply of calcium at low doses.

OPTYCAL® supplies plants with calcium in two ways:

- stimulates the uptake of calcium from the soil and its transport to the youngest parts of the plant (the auxin-calcium pump effect).
- directly and easily provides plants assimilable organic calcium through foliar treatment.

OPTYCAL® increases the calcium content in the plant and thereby improves fruit quality and storage properties.

OPTYCAL® – composition:

	NUTRIENT CONTENTS [g/kg]						
	CaO	B	Cu	Fe	Mn	Mo	Zn
OPTYCAL®	350	1.0	0.5	1.5	0.7	0.02	2.0



Available package sizes: **1.5; 3; 25 kg**

The greatest benefits of using **OPTYCAL®** are:



OPTYCAL® – direction of use:

OPTYCAL® is recommended in the cultivation of horticultural crops for foliar application.



Foliar treatments



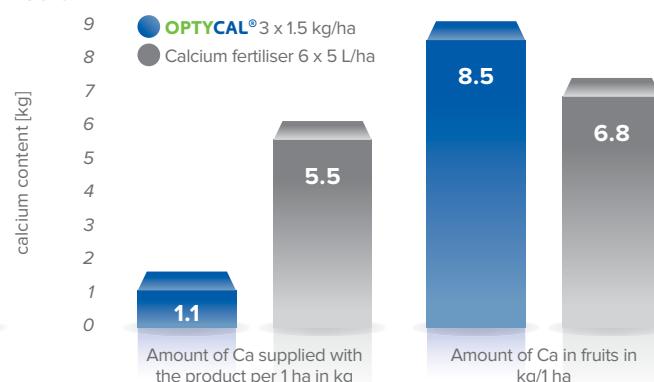
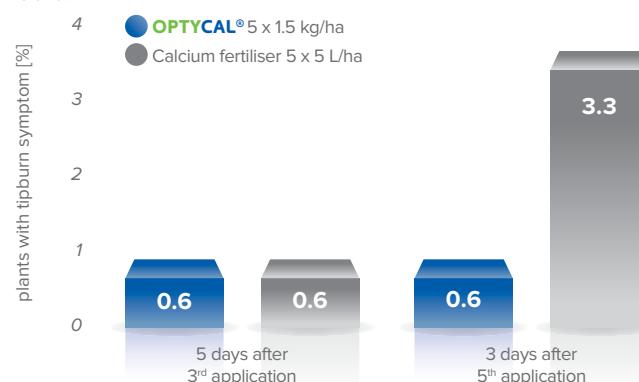
Single dose:
1–1.5 kg/ha



Recommended
number
of treatments:
1–4

OPTYCAL® – effectiveness confirmed by research:

Effect of **OPTYCAL®** application in the prevention of tipburn in Chinese cabbage [%]. Effect of **OPTYCAL®** application in providing calcium to apples [kg]. Poland.



ACTIVATORS

ROOTSTAR®



PLANT ROOTING ACTIVATOR

ROOTSTAR® is a foliar formulation intended for application in the early stages of plant development to improve rooting. The product has a biostimulating effect on plants, activating the production of auxins, which enhances cell division and induces side and lateral root formation. The root development and growth processes are additionally enhanced by the synergistic interaction of auxins and zinc. **ROOTSTAR®** is intended for use after germination to improve rooting and during other growing periods to accelerate root recovery after stress conditions (e.g., freezing temperatures or pest damage).

ROOTSTAR® – composition:

NUTRIENT CONTENTS [g/L]

	Zn
ROOTSTAR®	67

The greatest benefits of using **ROOTSTAR®** are:



- dynamically developing the root system
- improving plant health in the early stages of development
- increasing plant tolerance to low temperatures and lack of water

ROOTSTAR® – direction of use:

ROOTSTAR® is recommended in the cultivation of all types of agricultural and horticultural crops for foliar application.

CROPS

Foliar treatments



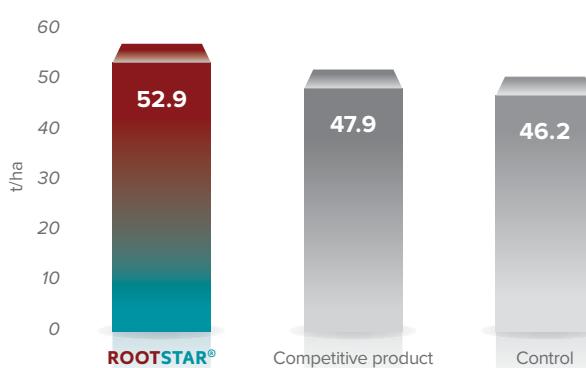
Single dose:
0.8–1.2 L/ha



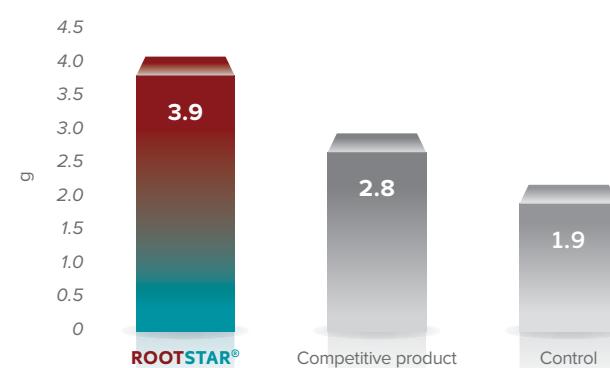
Recommended
number
of treatments:
1–2

ROOTSTAR® – effectiveness confirmed by research:

Effect of **ROOTSTAR®** application on yield of potato [t/ha].
Poland.



Effect of **ROOTSTAR®** application on average weight of strawberry roots [g].
Poland.



ACTIVATORS

HUMMER™



HUMIC SOIL ACTIVATOR

HUMMER™ is an organo-mineral fertiliser containing humic substances, intended for improving soil physico-chemical properties and supporting the development of soil microorganisms.

The greatest benefits of using HUMMER™ are:

- restoration of the soil sorption complex
- preservation of the soil granular structure
- creating favourable conditions for the development of soil microorganisms.

HUMMER™ – composition:

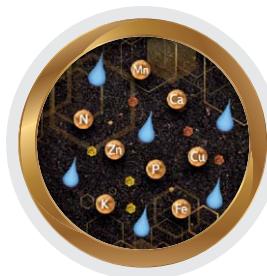
NUTRIENT CONTENTS [% m/m]

	C org.	K ₂ O
HUMMER™	5.0	2.0



Available package sizes: **20; 1000 L**

The greatest benefits of using HUMMER™ are:



Humic substances, which are the basic component of **HUMMER™** fertiliser, contribute to:

- preservation of the soil granular structure
- increasing the soil water capacity
- restoration of the soil sorption complex
- improving the buffer capacity of the soil
- creating favourable conditions for the development of soil microorganisms
- stimulating root growth and development



Vitamin **B₁**, contained in **HUMMER™** fertiliser, has a beneficial effect on plants by:

- stimulating root growth
- regulating the hormonal balance of plants

HUMMER™ – direction of use:

HUMMER™ is recommended in the cultivation of all types of agricultural and horticultural crops for soil application and fertigation.

CROPS



Soil treatments



Recommended amount of working solution:
300–600 L/ha

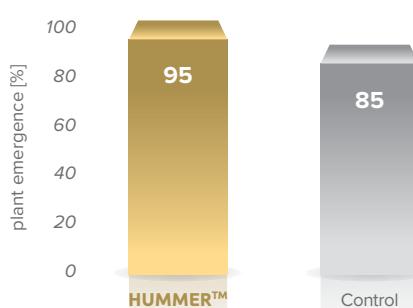
Fertigation



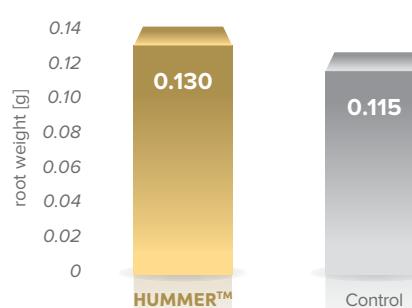
Recommended number of treatments:
2–4 times during the growing season

HUMMER™ – effectiveness confirmed by research:

Effect of **HUMMER™** fertiliser on wheat emergence 7 days after sowing [%]. INTERMAG trial, Poland.



Effect of **HUMMER™** fertiliser on the fresh weight of the wheat roots - growing stage: 2–3 leaves unfolded [g]. INTERMAG trial, Poland.





AMINOPRIM®

RECOVERY ACTIVATOR

AMINOPRIM® is a high-quality protein hydrolysate, characterized by a high content of natural amino acids and peptides (50% of amino acids).

AMINOPRIM® is intended for foliar application to improve plant tolerance to stresses and to accelerate plant recovery following stressful conditions.

AMINOPRIM® is recommended for simultaneous use with other agrochemicals:

- amino acids applied together with fertilisers improve nutrients' bioavailability
- amino acids applied together with plant protection products reduce stress caused by applying of these products.

The major beneficial effects of using **AMINOPRIM®** are:

- increased stress tolerance and enhanced plant recovery
- higher effectiveness and safety of agrochemical treatments
- improved yield quality and quantity.



Available package sizes:
1; 5; 10; 20; 1000 L



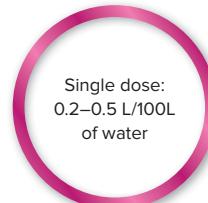
AMINOPRIM® – direction of use:

AMINOPRIM® is recommended in the cultivation of all types of agricultural and horticultural crops for foliar application.

CROPS

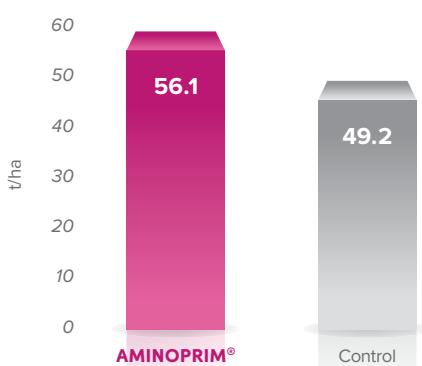


Foliar treatments

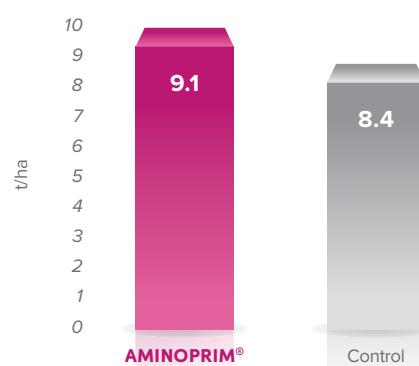


AMINOPRIM® – effectiveness confirmed by research:

Effect of **AMINOPRIM®** application on yield of potato [t/ha].
Poland.



Effect of **AMINOPRIM®** application on yield of winter wheat [t/ha].
Poland.





AMINOPRIM[®] PLANTACEA

RECOVERY ACTIVATOR

AMINOPRIM[®] PLANTACEA is a plant recovery activator characterized by a high content of **amino acids** of plant origin – 33% (29% of **FREE** amino acids).

AMINOPRIM[®] PLANTACEA is an organic plant recovery activator containing biologically active amino acids of plant origin. **AMINOPRIM[®] PLANTACEA** is intended for foliar application to increase stress tolerance and accelerate regeneration after stress conditions.

AMINOPRIM[®] PLANTACEA contains amino acids that activate synthesis of chlorophyll, are the basic building blocks of plant cells and accelerate the process of tissue reconstruction.

AMINOPRIM[®] PLANTACEA is recommended for simultaneous use with other agrochemicals:

- amino acids applied together with fertilisers improve nutrients' bioavailability
- amino acids applied together with plant protection products reduce stress caused by applying of these products.



Available package sizes: **1; 5; 10; 20; 1000 L**

AMINOPRIM[®] PLANTACEA – direction of use:

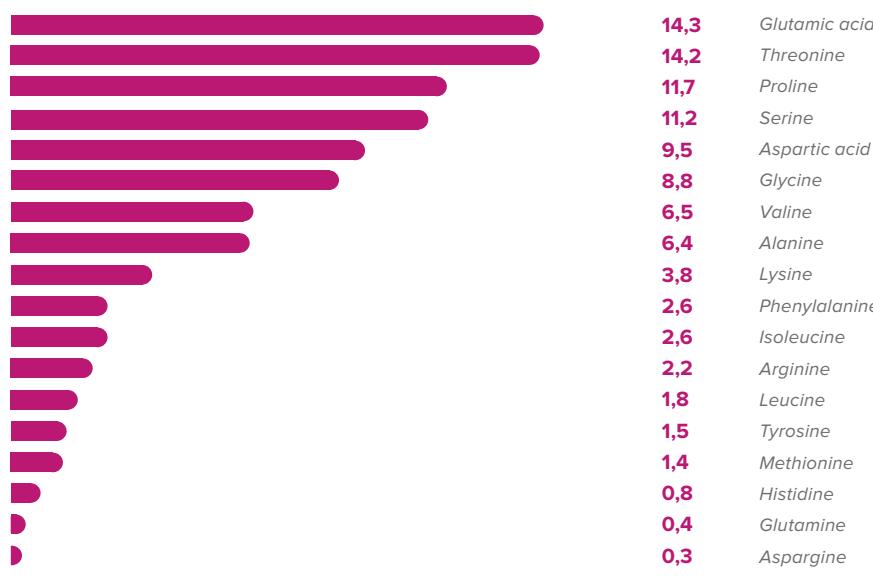
Foliar treatments



CROPS



Average percentage of **FREE** amino acids in **AMINOPRIM[®] PLANTACEA**.



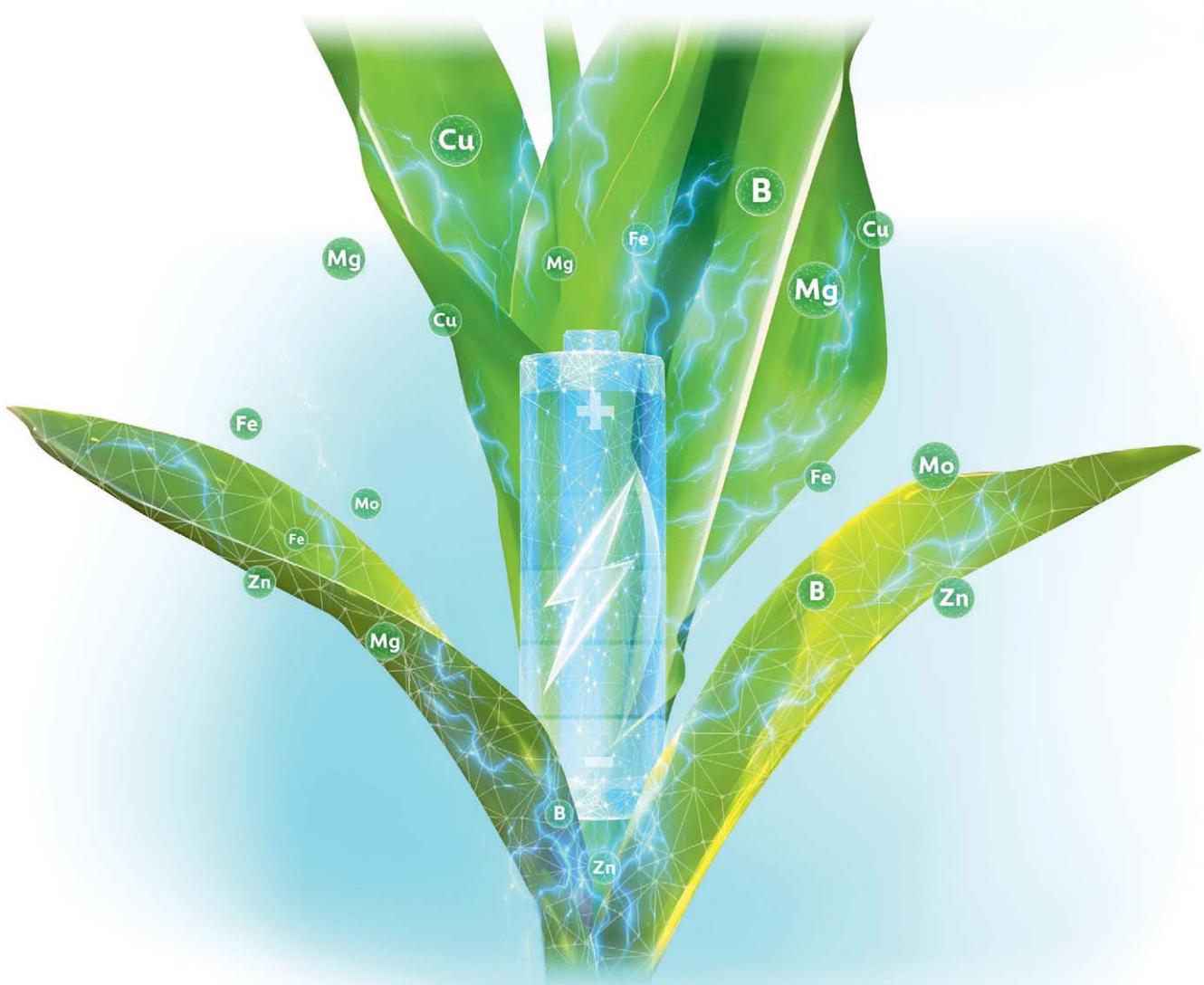


FOLIAR FERTILISERS

- The use of **advanced technologies for complexing** micronutrients
- Very high **availability** of nutrients confirmed by research
- Very high **effectiveness** even at low application doses
- Excellent **compatibility** with other agrochemicals
- **Environmentally friendly** due to the use of totally biodegradable components

PLONVIT®

NUTRI BOOST™



POWER
FOR PLANTS

FOLIAR FERTILISERS

The new generation of PLONVIT® fertilisers:

NUTRI BOOST™



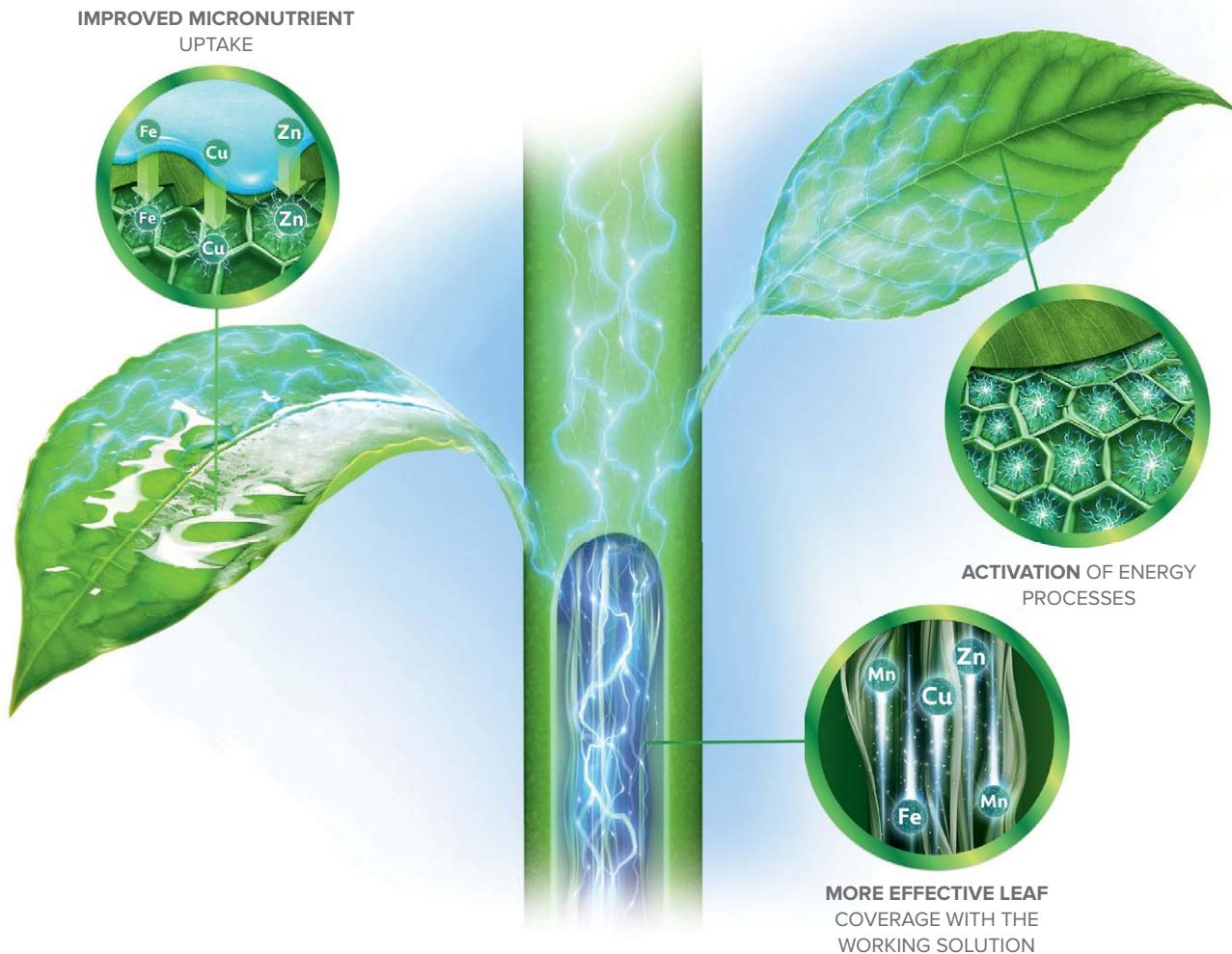
INNOVATIVE NUTRI BOOST™
TECHNOLOGY

IMPROVED COMPATIBILITY
WITH OTHER AGROCHEMICALS

HIGHER EFFICIENCY
(TWICE LOWER DOSE PER HECTARE)

NUTRI BOOST™ technology combines micronutrients with organic **gluconic acid**, a molecule naturally present in plants, along with innovative formulation additives. This technology serves to provide effective nutrition and to enhance yield.

NUTRI BOOST™ – mode of action:





PLONVIT®

NUTRIBOOST™

ADVANCED CROP SPECIFIC FERTILISERS
CEREALS, OIL CROPS, MAIZE, POTATO, LEGUMES, SUGAR BEET, ACTIVE



Available package sizes:
1; 5; 10; 1000 L

The NEW GENERATION of **PLONVIT®** fertilisers with innovative **NUTRIBOOST™** technology include a range of carefully selected microelements in amounts and proportions that meet the nutritional needs of various plant species. **PLONVIT®** fertilisers with **NUTRIBOOST™** technology are characterised by excellent miscibility with other agrochemicals, making them the basis of microelement nutrition for any type of agricultural plant.

NUTRIBOOST™ provides



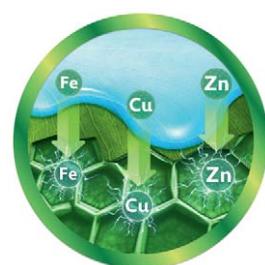
NUTRIBOOST™ MODE OF ACTION:



IMPROVED MICRONUTRIENT UPTAKE



ACTIVATION OF ENERGY PROCESSES



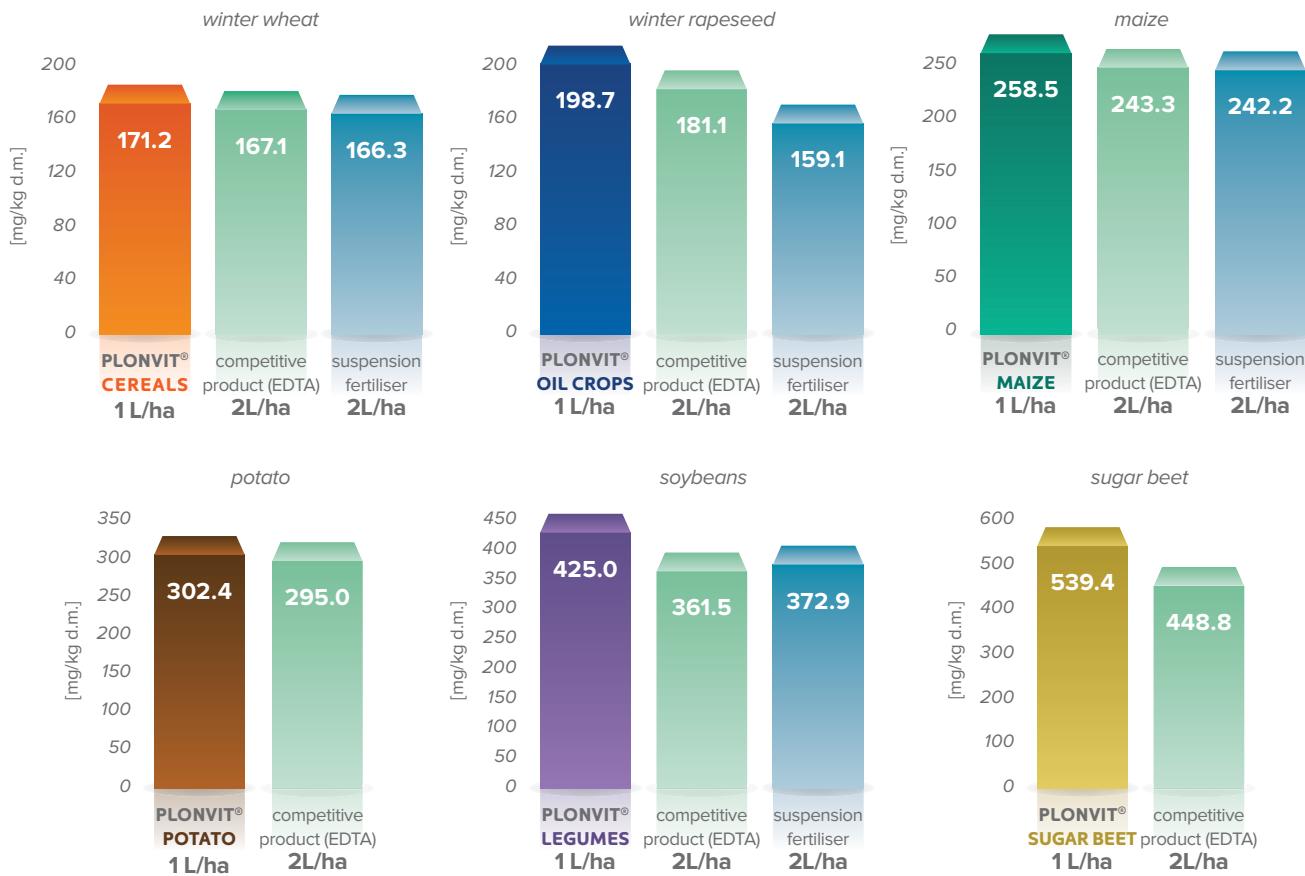
MORE EFFECTIVE LEAF COVERAGE WITH THE WORKING SOLUTION

FOLIAR FERTILISERS

PLONVIT® FERTILISERS PROVIDE EFFECTIVE PLANT NUTRITION AT LOW DOSES:

The effect of PLONVIT® fertilisers on the nutrient content (Cu, Fe, Mn, Zn) in leaves [mg/kg d.m.].

Winter wheat, winter rapeseed, maize, sugar beet, soybean – Experimental Station for the Evaluation of Crop Varieties in Pawlowice, Poland.
Potato – GBA, Poland.



NUTRI BOOST™

**new innovative
technology**



higher efficacy

PLONVIT® – composition

CONTENT OF NUTRIENTS [g/L]

	N	MgO	Na ₂ O	SO ₃	B	Co	Cu	Fe	Mn	Mo	Zn
PLONVIT® CEREALS	67.5	27		88	0.54		5.4	23	23	0.27	17
PLONVIT® OIL CROPS	67.5	27		80	8.6		3.2	17.3	21.6	0.27	17.3
PLONVIT® MAIZE	66	26.4		69	9.4		2.6	4.4	11.2	0.25	35
PLONVIT® LEGUMES	65.5	26.2		65.5	9.2	0.92	9.2	14.4	18.5	0.28	14.4
PLONVIT® POTATO	66.5	26.6		69	9.3		6.1	9.8	19.3	0.14	21.3
PLONVIT® SUGAR BEET	65.5	26.2	31.5	45.8	9.2		4.1	21	18.3	0.09	13.1
PLONVIT® ACTIVE	67.5	27		69	5.5		2.7	22	17.6	0.27	17.6

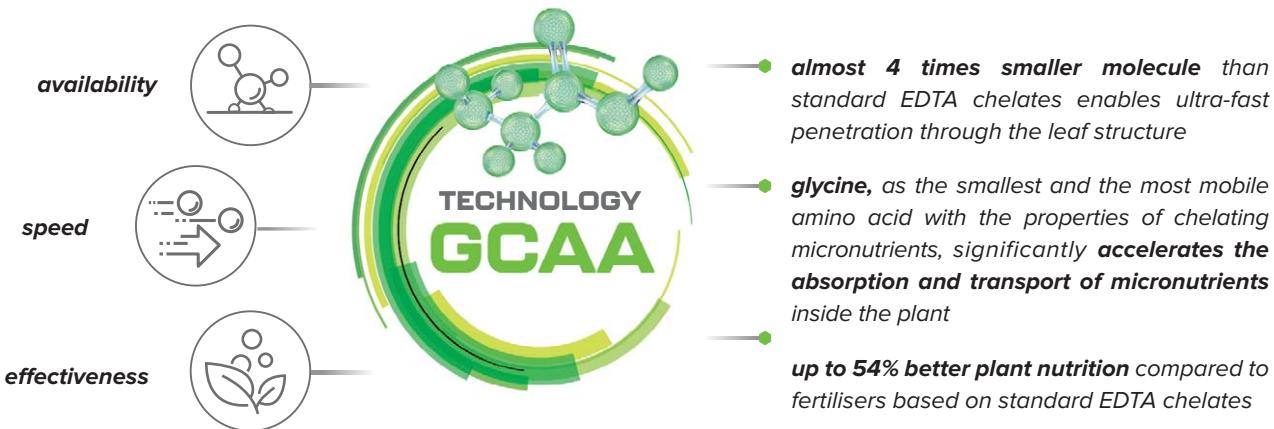
AMINO ULTRA[®]



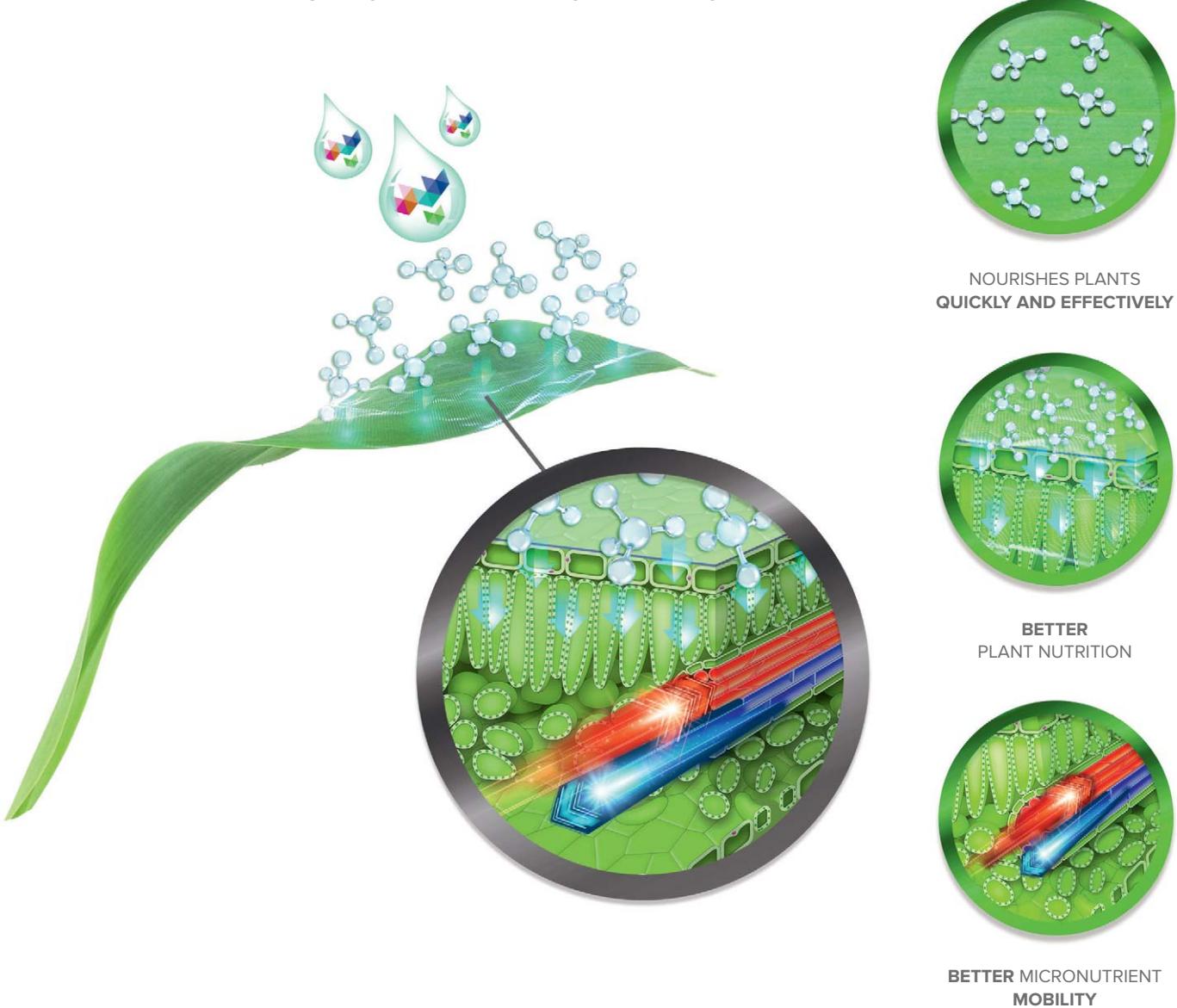
ULTRA-FAST
NUTRITION EFFECT

FOLIAR FERTILISERS

AMINO ULTRA® is a group of innovative, micronutrient fertilisers intended for foliar feeding. **AMINO ULTRA®** products are based on the patented **GCAA** technology, in which micronutrients are bonded with the amino acid glycine. Glycine is smallest and the most mobile amino acid in plants. Therefore, micronutrients bond with glycine to ensure faster and more effective plant nutrition than mineral salts, oxides or fertilisers based on other complexing agents. Thanks to the innovative technology, all nutrients are contained in one ultra-granule.



AMINO ULTRA® – higher yield and better yield quality:





AMINO ULTRA®

ULTRA-FAST NUTRITION EFFECT
CEREALS, OIL CROPS, MAIZE, HORTI, CITRUS



AMINO ULTRA® CEREALS, OIL CROPS, MAIZE, HORTI, CITRUS are micronutrient fertilisers in the form of **OneGran** – homogeneous granules whose composition has been developed according to the requirements of individual plant species. Thanks to **GCAA** technology, in which micronutrients are complexed with glycine, these fertilisers quickly and effectively provide plants with micronutrients in the proportions they need.

AMINO ULTRA® are fertiliser for the new challenges in agriculture:

One of the biggest challenges facing the world's farmers today is the increasing frequency and severity of weather anomalies. Recent years have shown that climate change, with prolonged and crop-destroying droughts in some periods and recurring rainstorms in others, is a major risk factor for every farmer.



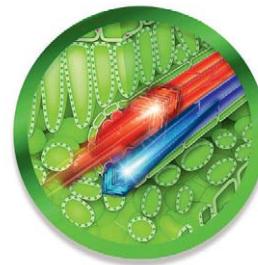
AMINO ULTRA® with **GCAA** technology ensure:



FASTER AND BETTER
UPTAKE OF MICRONUTRIENTS



HIGHER LEVELS
OF PLANT NUTRITION

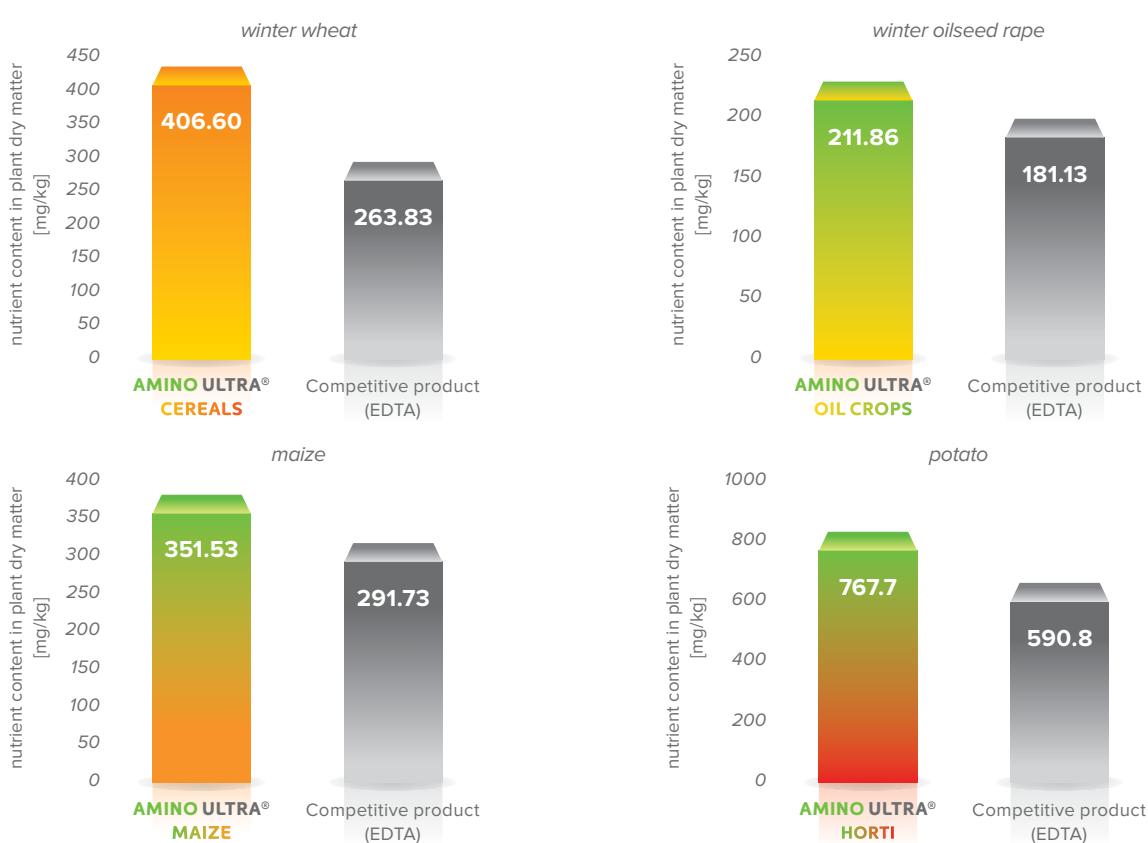


INCREASED MOBILITY
OF MICRONUTRIENTS

FOLIAR FERTILISERS

AMINO ULTRA® provides better plant nutrition:

Effect of AMINO ULTRA® series fertilisers application on leaf nutrient content (Fe, Mn, Zn, Cu, Mo, B) [mg/kg].
Wheat – INTERMAG.
Oilseed rape, maize, potato – Experimental Variety Testing Station, Poland.



AMINO ULTRA® – direction of use:

AMINO ULTRA® series is recommended for foliar application on all types of cereals, oil crops, maize and horticultural crops.

CROPS 

Foliar treatments



AMINO ULTRA® – composition:

CONTENT OF NUTRIENTS [g/kg]

	N*	B	Cu	Fe	Mn	Mo	Zn
AMINO ULTRA® CEREALS	44	1.8	18	70	75	0.7	55
AMINO ULTRA® OIL CROPS	47	21	7	53	85	0.7	55
AMINO ULTRA® MAIZE	40	16	8	68	57	0.8	60
AMINO ULTRA® HORTI	37	13	5	85	54	1.0	22
AMINO ULTRA® CITRUS	53				115		115

*nitrogen is derived from the amino acid



AMINO ULTRA[®]

ULTRA-FAST NUTRITION EFFECT

Cu-24, Fe-20, Mn-22, Zn-24



Available package sizes: **1; 5; 25 kg**

AMINO ULTRA[®] are an innovative inorganic fertilisers with patented **GCAA** technology that combines micronutrients with the amino acid glycine.

Glycine is the smallest and most mobile amino acid in plants. As a result, micronutrients bind to glycine for faster and more effective plant nutrition than mineral salts, oxides or fertilisers based on other complexing agents.

AMINO ULTRA[®] – composition:

	CONTENT OF NUTRIENTS [g/kg]			
	N*	Cu	Fe	Mn
AMINO ULTRA[®] Cu-24	50	240		
AMINO ULTRA[®] Fe-20	44		200	
AMINO ULTRA[®] Mn-22	54			220
AMINO ULTRA[®] Zn-24	52			240

*nitrogen is derived from the amino acid

AMINO ULTRA[®] – direction of use:

AMINO ULTRA[®] Cu-24, Fe-20, Mn-22, Zn-24 are recommended for foliar application in all types of crops.

CROPS

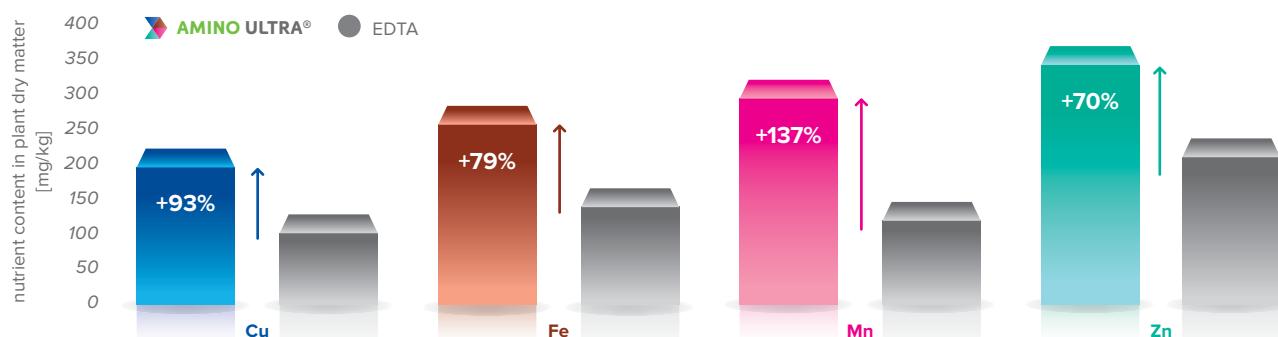
Foliar treatments

Single dose:
0.1–0.7 kg/ha

Recommended number of treatments:
2–4

AMINO ULTRA[®] is an effective absorption of micronutrients:

Nutrient uptake from **AMINO ULTRA[®]** compared to standard chelate and control – analysis 12 hours after application [mg/kg]. INTERMAG.





NEW
TECHNOLOGY

FOLIAR FERTILISERS



LEARN MORE

AMINO ULTRA® BORZIN

ADVANCED MICRONUTRIENT FERTILISER

AMINO ULTRA® BORZIN with **GCAA** technology is a water-soluble fertiliser intended for simultaneous supply of plants with zinc and boron. Zinc fully complexed by amino acids. The product is dedicated mainly for orchards' fertilization.

The **GCAA** technology used in **AMINO ULTRA® BORZIN** increases the speed and efficiency of uptake, transfer and assimilation of zinc by the plant.

AMINO ULTRA® BORZIN, applied in the autumn before winter dormancy, provides plants with boron and zinc in forms that the leaves can use. It accumulates in the lignified parts of the plant and is then used immediately after the start of vegetation in spring.

When applied in early spring, it provides boron and zinc at a time when plant leaves are beginning to develop or are still relatively small in number.

AMINO ULTRA® BORZIN is also recommended as an effective source of zinc and boron in crops with high zinc and boron requirements (e.g. maize, potatoes and fruit trees).



Available package sizes:
1; 3.5; 10; 25 kg

AMINO ULTRA® BORZIN – composition:

	CONTENT OF NUTRIENTS [g/kg]				
	N	MgO	SO ₃	B	Zn
AMINO ULTRA® BORZIN	5	5	73	110	50

AMINO ULTRA® BORZIN – direction of use:

AMINO ULTRA® BORZIN is recommended for foliar application in all types of horticulture and agriculture crops.

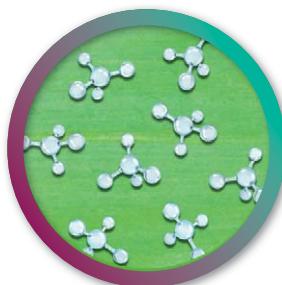
CROPS



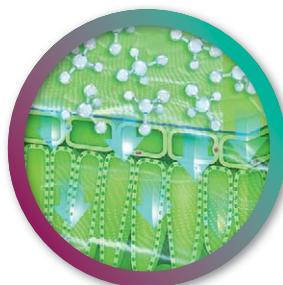
Foliar treatments



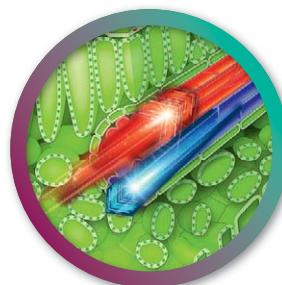
AMINO ULTRA® with GCAA technology ensure:



FASTER AND BETTER
NUTRIENT UPTAKE



HIGHER LEVEL
OF PLANT NUTRITION



BETTER MOBILITY
OF MICRONUTRIENTS



FOLIAR FERTILISERS

AMINO ULTRA®



ULTRA-FAST NUTRITION EFFECT
Cu SL, Fe SL, Mn SL, Zn SL, ACTIVE SL



Available package sizes:
 1; 5; 10;
 20; 1000 L

AMINO ULTRA® SL are an innovative liquid inorganic fertilisers with patented **GCAA** technology that combines micronutrients with the amino acid glycine.

Glycine is the smallest and most mobile amino acid in plants. As a result, micronutrients bind to glycine for faster and more effective plant nutrition than mineral salts, oxides or fertilisers based on other complexing agents.

AMINO ULTRA® – composition:

CONTENT OF NUTRIENTS [g/L]

	N*	Cu	Fe	Mn	Zn
AMINO ULTRA® Cu SL	15	71			
AMINO ULTRA® Fe SL	10		49		
AMINO ULTRA® Mn SL	14			57	
AMINO ULTRA® Zn SL	26				121
AMINO ULTRA® ACTIVE SL	56	6	27	27	20

*nitrogen is derived from the amino acid



ultra-fast nutrition effect thanks to **GCAA** technology, based on the smallest and most mobile amino acid – GLYCINE

safety and efficacy of plant nutrition, even in unfavourable growing conditions

efficiency and profitability thanks to the low dose per hectare

biodegradability thanks to the use of glycine, naturally occurring in plants

AMINO ULTRA® – direction of use:

AMINO ULTRA® SL is recommended for foliar application in all types of crops.

CROPS



Foliar treatments

Single dose:
 0.3–2 L/ha

Recommended
 number
 of treatments:
 1–4



MIKROVIT®

BORON TURBO, BORON PLUS



EFFECTIVE SOURCE OF BORON

MIKROVIT® BORON TURBO and **MIKROVIT® BORON PLUS** are highly concentrated fertilisers, in liquid form, containing boron in a form of boron ethanoloamine – an organic form of boron ensuring greater absorption of boron by plants, compared to other inorganic boron sources. They prevent boron deficiencies and effectively eliminate and limit the negative effects of a deficit. The INT technology used in **MIKROVIT® BORON TURBO** increases the speed and efficiency of the uptake, transfer and assimilation of boron in the plant.

MIKROVIT® BORON PLUS contains molybdenum and is enriched with algae extract.



Available package sizes: **1; 5; 10; 20; 1000 L**

MIKROVIT®: BORON TURBO and BORON PLUS – composition:

	NUTRIENT CONTENTS [g/L]		
	B	Mo	Additives
MIKROVIT® BORON TURBO	150		INT technology
MIKROVIT® BORON PLUS	150	55	Algae extract

MIKROVIT®: BORON TURBO and BORON PLUS

– direction of use:

MIKROVIT® BORON and **MIKROVIT® BORON TURBO** is recommended for foliar application in all types of horticulture and agriculture crops.

CROPS

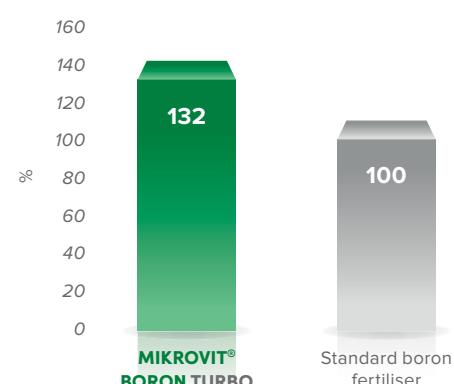
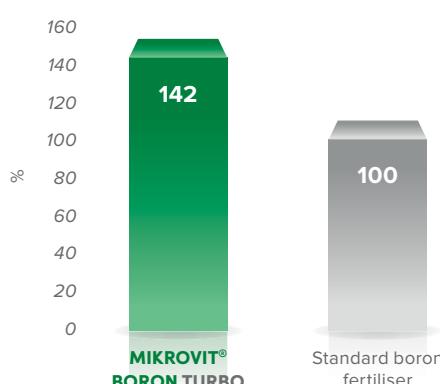
Foliar treatments



MIKROVIT® BORON TURBO – effectiveness confirmed by research:

Content of boron in young leaves of winter oilseed rape.
Experimental Station in Węgrzce, Poland.

Content of boron in the youngest leaves of winter oilseed rape.
Institute of Plant Protection in Poznań, Poland.





PLONVIT®

FOSTAR, KALPRIM, SULVIT, NITROMAG, UNI PK 14:24, PK 28:30, PK 49:20, N37, PHOSPHORO-ZINC



A group of macroelement fertilisers for foliar application.

Fertilisers in this group contain the macronutrients required for the growth of each crop. Their use provides a rapid supply of macroelements during periods of high demand or limited availability from the soil. Macroelement foliar applications are also used to speed up plant regeneration after stressful conditions. Fertilisers in this group are effective in correcting macroelement deficiencies, which helps to increase yields.

	NUTRIENT CONTENT [g/L]											
	N	P ₂ O ₅	K ₂ O	CaO	MgO	SO ₃	B	Cu	Fe	Mn	Mo	Zn
PLONVIT® FOSTAR	70	500										
PLONVIT® KALPRIM	45		400									
PLONVIT® SULVIT	200					760						
PLONVIT® NITROMAG	370				40		0.27	3.0	0.4	11.0	0.05	0.27
PLONVIT® UNI PK 14:24	35	136	245									
PLONVIT® PK 28:30		280	302									
PLONVIT® PK 49:20		490	125									
PLONVIT® N37	370				18		0.26	1.3	2.6	1.3	0.07	0.26
PHOSPHORO-ZINC	77	500										30

PLONVIT® – benefits:



SUPPLEMENT SOIL
FERTILISATION



SUPPLY PLANTS
WITH MACRO- AND
MICRONUTRIENTS



INCREASE
YIELD QUANTITY

FOLIAR FERTILISERS

PLONVIT®

CALCIUM TURBO

LIQUID CALCIUM FERTILISER WITH MICRONUTRIENTS

PLONVIT® CALCIUM TURBO is a liquid calcium fertiliser with micronutrients containing 260 g CaO in 1 L. **PLONVIT® CALCIUM TURBO** may be used in fertigation. The INT technology used increases the speed and efficiency of the uptake, transfer and assimilation of calcium in the plant.

Use of **PLONVIT® CALCIUM TURBO** reduces the occurrence of physiological diseases related to calcium deficiency, such as:

- blossom end rot
- bitter pit in apples
- cherry and sweet cherry fruit bursting
- “tipburn” in cruciferous vegetables

PLONVIT® CALCIUM TURBO is an element of growing horticultural plants technology for the fresh market and for processing.

Used in agricultural crops, especially root crops, it increases the content of reserve substances, e.g., sugar in sugar beet.

PLONVIT® CALCIUM TURBO – composition:

	NUTRIENT CONTENTS [g/L]					
	N	CaO	B	Cu	Mo	Zn
PLONVIT® CALCIUM TURBO	128	260	0.75	0.3	0.015	0.3

PLONVIT® CALCIUM TURBO – benefits:



REDUCE PHYSIOLOGICAL
DISEASES RELATED TO CALCIUM
DEFICIENCY



INCREASE THE FIRMNESS
OF FRUITS AND VEGETABLES



INCREASE
YIELD QUANTITY

PLONVIT® CALCIUM TURBO – direction of use:

PLONVIT® CALCIUM TURBO is recommended for foliar application in all types of agriculture and horticulture crops.

CROPS



Foliar treatments



LEARN MORE



Available package sizes: **1; 5; 10; 20; 1000 L**

PLONVIT®

CRYSTALLINE MACRONUTRIENT FERTILISERS
WHICH TECHNOLOGY GCAA
OPTY, KALI, NITRO, PHOSPHO



Available package sizes:
2; 15 kg

Crystalline macronutrient fertilisers - are a group of crystalline fertilisers with a high concentration of nutrients in balanced proportions. These products are completely soluble in water and provide a complete supply of nutrients to the fertilised plants.

This group includes multi-nutrient fertilisers containing balanced doses of nitrogen, phosphorus, calcium and micronutrient additives. Fertilisers from this group effectively compensate for macroelement deficiencies and ensure high yields from fertilised crops.

PLONVIT® – composition:

	CONTENT OF NUTRIENTS [g/kg]								
	N	P ₂ O ₅	K ₂ O	B	Cu	Fe	Mn	Mo	Zn
PLONVIT® OPTY	200	200	200	0.3	0.3	1.5	0.7	0.02	0.7
PLONVIT® KALI	110	120	380	0.3	0.3	1.5	0.7	0.02	0.7
PLONVIT® NITRO	310	120	100	0.3	0.3	1.5	0.7	0.02	0.7
PLONVIT® PHOSPHO	110	530	50	0.3	0.3	1.5	0.7	0.02	0.7

The PLONVIT® series of fertilisers:



INCREASE AND IMPROVE
CROP QUALITY



IMPROVE
PLANT CONDITIONS



INCREASE RESISTANCE
TO UNFAVOURABLE GROWING
CONDITIONS

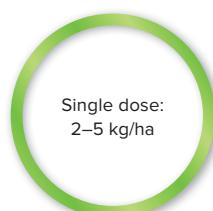
PLONVIT® – direction of use:

PLONVIT® is recommended in the cultivation of all types of agricultural and horticultural crops for foliar application and fertigation.

CROPS



Foliar treatments



Single dose:
2–5 kg/ha



Recommended
number
of treatments:
2–4

SUPPLEMENTARY PRODUCTS IN OUR PORTFOLIO

PLONVIT® BOROSULF

EFFECTIVE SOURCE OF BORON AND SULPHUR

Crystalline, water-soluble fertiliser recommended for foliar feeding of plants with high requirements for boron and sulphur. Effectively supplements and/or corrects soil fertiliser levels of sulphur and boron. Other nutrients in the fertiliser enhance the improvement of plant condition and yield.

Single dose (foliar): 0.5–3 kg/ha



PLONVIT® GEL 20/20/20

SUSPENSION HIGHLY CONCENTRATED NPK FERTILISER

Liquid macronutrient fertiliser with micronutrients for foliar application. It is a highly concentrated NPK micronutrient fertiliser in gel form (water-soluble suspension) that combines the advantages of crystalline fertilisers (high nutrient concentration) with those of liquid fertilisers (easy application and preparation of working solution).

Single dose (foliar): 2–6 L/ha



MIKROCHELAT™ Mn-6 SL

LIQUID MANGANESE CHELATE

Liquid foliar manganese fertiliser intended for foliar application to prevent and eliminate manganese deficiency in plants.

Single dose (foliar): 0.5–1.5 L/ha



MIKROCHELAT™ Cu-15, Fe-13, Mn-13, Zn-15

ULTRA-GRANULAR MICRONUTRIENT CHELATES

Range of ultra-granular chelated fertilisers recommended for foliar feeding, fertigation and hydroponics. Microchelates are chelated products that deliver nutrients to plants for quick and easy uptake.

Single dose (foliar): 0.1–1 kg/ha

Fertigation: Adjust the composition of nutrient solution and application frequency to match the plant requirements and type of substrate.



MIKROVIT®: ZINC, MANGANESE, COPPER, MOLYBDENUM, IRON, BORON, COMO **NEW**

LIQUID MICRONUTRIENT FERTILISERS

Series of specialist micronutrient foliar fertilisers. These fertilisers contain complex compounds that accelerate the uptake of micronutrients by plants and facilitate the combined use of individual fertilisers with other agrochemicals.

Single dose (foliar): 0.5–2 L/ha

Fertigation: 1–2 mL per 1000 L



MIKROKOMPLEX®

CRYSTALLINE MAGNESIUM AND MICROELEMENT FERTILISER

Recommended for foliar application and fertigation. An intervention for visual symptoms of magnesium and/or sulphur deficiency in plants or after diagnosing low levels of these elements in plants.

Single dose (foliar): 3–7 kg/ha

Fertigation: 0.1–1 kg per 1000 L



DROPFERT®: 4/40/13, 9/10/36, 18/18/18

BALANCED FERTILISERS FOR FERTIGATION

A series of high quality, chloride-free fertilisers designed for fertigation in inert, organic and soil substrates and for the preparation of ready-to-use nutrient solutions and concentrates. The high quality of the components used for fertiliser production and the appropriate form of the nutrients in the fertilisers ensure high availability for plants.

Single dose (fertigation): 0.3–2 kg per 1000 L





FERTILISERS FOR FERTIGATION

- **The highest quality** of fertilisers, containing nutrients in a balanced ratio
- **Unique** solutions for fertigation, containing biostimulating substances
- Very high **nutrient absorption** and **availability** for plants

FERTILISERS FOR FERTIGATION



MIKRO PLUS™

MIKRO PLUS™ ULTRA

MIKRO PLUS™ and **MIKRO PLUS™ ULTRA** are highly concentrated, liquid and ultragranulated multi-ingredient fertiliser for fertigation and are used to provide plants with a set of easily acquired and assimilated micro-nutrients.

MIKRO PLUS™ ULTRA is comprised of ingredients that are all contained in each ultra-granule, thanks to innovative technology. This guarantees full homogeneity of the product and high solubility.

MIKRO PLUS™ is a liquid chelate. Full chelation of trace elements guarantees stability in concentrated and ready-to-use media and allows mixing with other agrochemicals.



Available package sizes:

MIKRO PLUS®
MIKRO PLUS® ULTR

1; 5; 10; 20; 1000 L
1; 5; 25 kg

MIKRO PLUS™ – composition:

NUTRIENT CONTENTS [g/L]						
	B	Cu	Fe	Mn	Mo	Zn
MIKRO PLUS™	2.3	1.2	23.6	9.5	0.59	3.5

MIKRO PLUS™ ULTRA – composition:

NUTRIENT CONTENTS [g/kg]						
B	Cu	Fe	Mn	Mo	Zn	
7	4	63	28	1.5	9	

Major advantages of MIKRO PLUS™ and MIKRO PLUS™ ULTRA:



HIGH CONTENT OF FULLY-CHELATED TRACE ELEMENTS



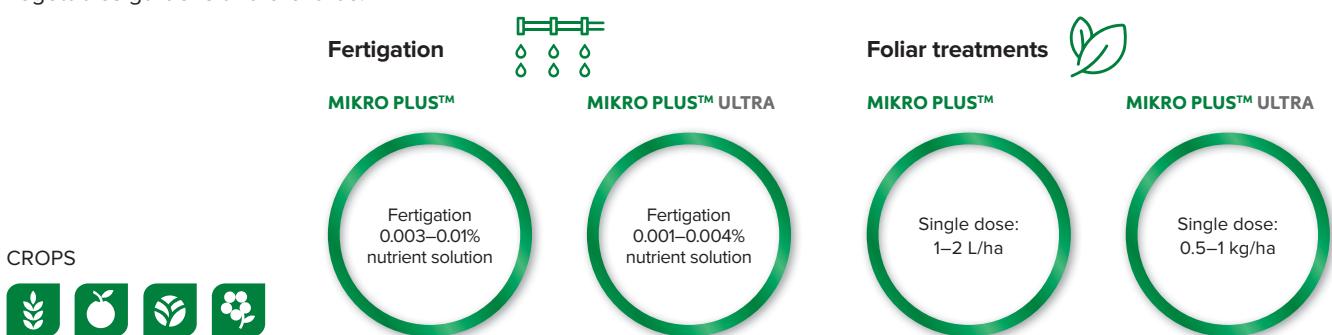
STABILITY OVER A WIDE pH RANGE



INCREASE QUANTITY OF YIELD

MIKRO PLUS™, MIKRO PLUS™ ULTRA – direction of use:

MIKRO PLUS™ and **MIKRO PLUS™ ULTRA** are recommended for fertigation and foliar application in agriculture crops, vegetables gardens and orchards.



PRODUCTS FOR FERTIGATION

CHELATES

MIKROCHELAT™ **Fe-6 SL** is a liquid iron (76 g Fe/litre) fully chelated by DTPA for use in fertigation.

MIKROCHELAT™ **Fe-11** is iron (110 g Fe/kg) fully chelated by EDTA in ultra-granular form for use in fertigation.

MIKROCHELAT™ **Fe-13** is iron (130 g Fe/kg) fully chelated by EDTA in ultra-granular form for use in fertigation.



BIOSTIMULANTS and ACTIVATORS

OPTYSIL® is an innovative SILICON immunity biostimulant containing an active form of silicon that owes its effectiveness to the unique duoSIL® formula. This formula ensures easy and full availability of the silicon contained in the product, high stability and the ability to mix with most agrochemicals.

HUMMER™ is an organo-mineral fertiliser containing humic substances, intended to improve soil physico-chemical properties and support the development of soil microorganisms.



MICROBIAL PRODUCTS

BACTIM® FERTI is a microbial bioproduct designed for fertigated crops. Its unique formula, based on carefully selected micro-organisms, creates a natural barrier in the soil around the plant's root system, reducing the harmfulness of soil-borne diseases.

MYCOTIM VIGOR comprises a combination of mycorrhizal fungi enhanced with plant growth promoting rhizobacteria (PGPRs). It is a multifunctional bioproduct intended for improving the composition of the microbiome of plant phyllosphere and rhizosphere by creating a microbial barrier on the plant, which in a natural way inhibits the development of pathogens.

MYCOTIM NEMABLOCK is a bioproduct containing unique consortium of mycorrhizal fungi and rhizosphere bacteria. The product is recommended for cultivations exposed to nematodes in order to limit their harmfulness and support plant growth and development.



NPK + micro FERTILISERS

PLONVIT® is a universal crystalline fertilisers series that can also be used for fertigation of crops in soil: **PLONVIT® NITRO**, **PLONVIT® PHOSPHO**, **PLONVIT® KALI**, **PLONVIT® OPTY**.

DROPFERT® is a series of high quality, chloride-free fertilisers designed for fertigation in inert, organic and soil substrates and for the preparation of ready-to-use nutrient solutions and concentrates. The high quality of the components used for fertiliser production and the appropriate form of the nutrients in the fertilisers ensure high availability for plants.



TANK MIX ADDITIVES

- **Advanced** formulations for increasing the effectiveness of applied foliar fertilisers and plant protection products
- Solutions for **improving the quality and properties** of water used in foliar treatments
- Solutions for reducing **seed losses** during harvest
- Product for cleaning **farm equipment**

NEW

TANK MIX ADDITIVES



HEROSIL™

SILICONE ADIUVANT

HEROSIL™ is a highly effective silicone adjuvant designed for use as an additive to the working solution. Thanks to its advanced technology, it significantly reduces surface tension and enables optimal coverage of the plant surface. It ensures better penetration of active ingredients and nutrients, improving the efficacy of foliar treatments.

Key benefits of **HEROSIL™**:

- Improved spreading of the spray over the leaf surface
- Improved uptake of crop protection products and foliar fertilizers by plant surface
- Increased application efficiency in difficult conditions such as low humidity
- Reduced loss of working solution

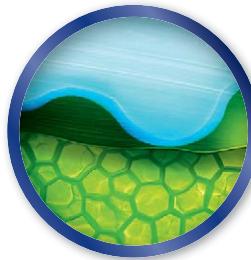
The greatest benefits of using **HEROSIL™** are:



REDUCTION OF SURFACE TENSION



INCREASED PENETRATION OF ACTIVE SUBSTANCES AND NUTRIENTS



IMPROVED ADHESION



OPTIMIZE WORKING SOLUTION USAGE

HEROSIL™ – direction of use:

HEROSIL™ is recommended for combined application with many agrochemicals, during preparation of the working liquid intended for foliar application.

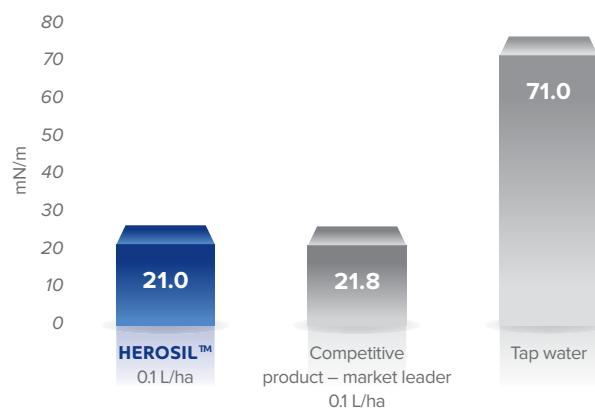
CROPS



Recommended dose:
0.1 L/ha

HEROSIL™ – effectiveness confirmed by research:

Effect of HEROSIL application on reducing surface tension [mN/m].



PROAQUA® TRIO

WATER CONDITIONER

PROAQUA® TRIO is a multifunctional water conditioner with adjuvant properties that neutralizes the negative properties of hard water, lowers the pH of the solution and reduces the surface tension of solution.

PROAQUA® TRIO comprehensively prepares water for foliar treatments thanks to the two-phase formulation with a triple effect of action.

The **3-in-1** formula ensures the following:

- reducing the water hardness due to the complexation of Ca and Mg ions
- lowering the pH by acidifying the solution
- reducing the surface tension and increasing the wettability of the plant surface.



The greatest benefits of using PROAQUA® TRIO are:

Available package sizes: **1; 5; 10; 20; 1000 L**



LOWER WATER HARDNESS



LOWER pH



LOWER SURFACE TENSION

PROAQUA® TRIO – direction of use:

Add **PROAQUA® TRIO** conditioner to the water before or during preparation of the working liquid intended for foliar spraying.

CROPS



Medium-hard water

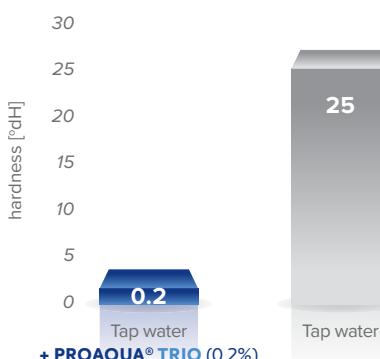
Recommended dose:
0.1 L/100 litres
of working solution

Hard water

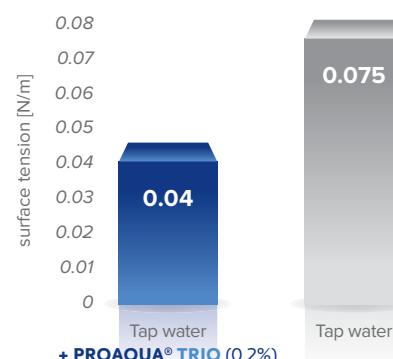
Recommended dose:
0.2 L/100 litres
of working solution

PROAQUA® TRIO – effectiveness confirmed by research:

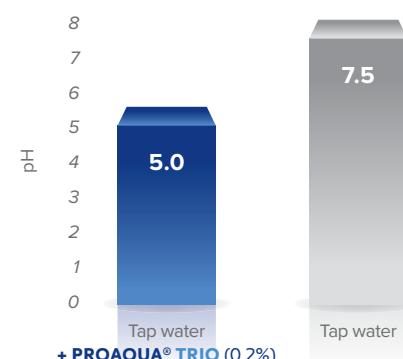
Lower water hardness [°dH].
INTERMAG trial, Poland



Lower surface tension [N/m].
INTERMAG trial, Poland.



Lower pH.
INTERMAG trial, Poland.



ADITENS™ MAX

SYSTEMIC ADIUVANT

ADITENS™ MAX is an adiuvant that improves the properties of solutions used in foliar nutrition and protection treatments, among others, by reducing the surface tension and contact angle, which provides better coverage of the sprayed surface and increases the effectiveness of treatments.

The product increases the physiological activity and enhances the effectiveness of used agrochemicals.

The product contains substances that facilitate and accelerate uptake and distribution of nutrients and/or active substances in the plant. **ADITENS™ MAX** is particularly recommended for combined use with agricultural chemicals that have systemic effects.

In cases where the condition of plants requires rapid assimilation of components from foliar fertilisers or plant protection products and where the conditions for spraying are harsh (e.g., low air humidity, high or low air temperature, etc.), the treatment must be performed.

ADITENS™ MAX – direction of use:

Add **ADITENS™ MAX** to the water before or during preparation of the working liquid intended for foliar spraying or fertigation.

CROPS



Available package sizes:

0.5; 1; 5; 10; 20 L



FASTER®

ANTIFOAM ADIUVANT

FASTER® is an adiuvant that improves the qualities of solutions used in foliar fertilising and plant protection. Compared to other adiuvants, it has anti-foaming properties and significantly reduces the amount of foam in a sprayer tank.

FASTER® facilitates correct application, coverage, and maintenance of a layer of the working solution on the plant surface. This enhances assimilation of nutrients from foliar fertilisers and increases the effectiveness of active ingredients in plant protection products.

Available package sizes:

1; 5; 10; 20 L



FASTER® – direction of use:

FASTER® is recommended for combined application with many agrochemicals (e.g., fungicide, insecticide, growth regulator, fertiliser, biostimulant, etc.), especially those that provoke foaming of the liquid.

Recommended dose:
0.1 L/100 L
of working solution



TANK MIX ADDITIVES

PESTICLEAN™

CLEANING AGENT FOR SPRAYERS

PESTICLEAN™ is a liquid sprayer cleaner that removes pesticide residues and other deposits, including greasy substances.

PESTICLEAN™ removes residues of plant protection products, including sulfonylurea herbicides (e.g., chlorsulfuron, sulfonfulfuron, methyl flupyrifluron, rimsulfuron, methyl thifensulfuron, methyl tribenuron, methyl triflusulfuron, nicosulfuron, etc.).

PESTICLEAN™ is a mixture of surfactants in aqueous solution that can be used to clean tanks, filters, nozzles, beams and hoses.

Available package sizes: **1; 5; 10; 20 L**



PESTICLEAN™ – direction of use:

The amount of the sprayer cleaning solution must be adjusted to the size of the sprayer tank to ensure that the solution covers the entire inner surface of the sprayer tank.

Recommended dose:
0.20-0.25 L/100 L
of water

STRETCH™

ADIUVANT FOR STRENGTHENING SILIQUES, HUSKS AND EARS DURING THE HARVEST MATURITY PHASE

STRETCH™ is an adjuvant for strengthening siliques, husks and ears during the harvest maturity phase. It is intended to reduce the uncontrolled shedding of rapeseed and legume seeds, as well as to reduce cereal grain sprouting in ears.

STRETCH™ forms a thin elastic film on the sprayed surface (without a need for sunlight). The semipermeable film allows water to evaporate from the sprayed plant surface and reduces the ingress of moisture to the inside, thus reducing the multiple wetting and drying of siliques and husks, which is the main cause of seed shedding.

STRETCH™ is also intended to prevent sprouting of cereal grains in ears in high humidity conditions caused by rain or fog.

When applied on ears, **STRETCH™** can also prevent moisture ingress to the inside of the ear and to fully mature grains, thereby reducing the activation of enzymes (protease, lipase, and other hydrolytic enzymes) that initiate sprouting.

STRETCH™ – direction of use:

Use the **STRETCH™** adjuvant in the form of an aqueous solution. The formulation may be used in combination with desiccants registered for a given crop.

CROPS



Available package sizes: **1; 5; 10; 20 L**



Recommended dose:
1 L/ha

Recommended application time:
2-3 weeks before harvest





According to the new strategy related to the European Green Deal, organic farming will play an essential role in developing a sustainable food system for the EU. Under the Farm to Fork strategy, the European Commission has set a target of utilising 'at least 25% of the EU's agricultural land under organic farming by 2030'. This is a huge challenge, as organic food is produced according to strict rules that define permitted preparations and ways of food production methods.

According to the Regulation of the European Parliament and of the Council (EU) 2018/848, organic crop production is allowed to use fertilisers that have received the appropriate certificates of qualification issued by authorized certification bodies. The use of mineral nitrogen fertilisers is not allowed.

INTERMAG is successively expanding the range of products registered for use in international organic agriculture. As a result, organic food producers can obtain high yields with the excellent quality expected by consumers. The company's innovative products enable farmers to not only comprehensively nourish organic crops with the most important micronutrients, but also stimulate plant growth and development, increasing plant tolerance to unfavourable environmental conditions.

INTERMAG is constantly expanding its range of products for organic farming, and all updates on new products for organic crops are available at www.intermag.eu.

INTERMAG products for organic farming provide:



EU certification – all our products approved for use in organic farming comply with Regulation (EU) 2018/848 of the European Parliament and of the Council.



Sustainability – our fertilisers and biostimulants are designed to support sustainable agriculture, in line with the aims of the European Green Deal.



High quality and productivity – by using advanced technology fertiliser products, farmers can achieve high yields of excellent quality to meet growing consumer demand for organic food.

AMINO ULTRA® Cu SL, Fe SL, Mn SL, Zn SL

AMINO ULTRA® SL are innovative liquid inorganic fertilisers with patented **GCAA** technology that combines micronutrients with the amino acid glycine. Glycine is the smallest and most mobile amino acid in plants. As a result, micronutrients bind to glycine for faster and more effective plant nutrition than mineral salts, oxides or fertilisers based on other complexing agents

Single dose: 0.3–2 L/ha

AMINO ULTRA® Cu-24, Fe-20, Mn-22, Zn-24

AMINO ULTRA® is an innovative inorganic fertiliser with patented **GCAA** technology that combines micronutrients with the amino acid glycine. Glycine is the smallest and most mobile amino acid in plants. As a result, micronutrients bind to glycine for faster and more effective plant nutrition than mineral salts, oxides or fertilisers based on other complexing agents.

Single dose: 0.1–0.7 kg/ha

AMINO ULTRA® CEREALS, OIL CROPS, MAIZE, HORTI

AMINO ULTRA® CEREALS, OIL CROPS, MAIZE and HORTI are micronutrient fertilisers in the form of **OneGran** – homogeneous granules whose composition has been developed according to the requirements of individual plant species. Thanks to **GCAA** technology, in which microelements are complexed with glycine, these fertilisers quickly and effectively provide plants with micro-elements in the proportions they need.

Single dose: 0.5–0.75 kg/ha

PRODUCTS FOR ORGANIC FARMING

OPTYSIL®

OPTYSIL® is an IMMUNITY BIOSTIMULANT that increases plant tolerance to adverse growing conditions (e.g., drought and other abiotic stresses). Increases plant tolerance to biotic stress caused by pathogens and/or pest attacks. Stimulates young plants' root growth. Improves a crop's yield, quality and storage parameters.

Single dose: 0.5 L/ha

PLANTICINE®

PLANTICINE® is a unique biostimulant of natural plant defence mechanisms, containing plant substances called – oligogalacturonides. Thanks to the innovative and unique formula **BioVaxin®**, the product activates innate immunity, preparing plants for the attack of pathogens.

Single dose: 2 L/ha

BACTIM® ENDOFIX

BACTIM® ENDOFIX is a unique product based on endophytic bacteria *Paenibacillus polymyxa*, which penetrate into the internal tissues of plants, supplying them with additional nitrogen and biostimulating substances such as: phytohormones, amino acids, enzymes, and proteins. **BACTIM® ENDOFIX** provides plants with nitrogen in the form of easily assimilable ammonium ions throughout the growing season, from the time of application until harvest, even under conditions that make it difficult to absorb this element from the soil.

Single dose: 400 mL/ha

BACTIM® NUTRI N+

BACTIM® NUTRI N+ is a biostimulant increasing the nitrogen supply of plants and containing an efficient strain of bacteria *Azotobacter sp.* Application of **BACTIM® NUTRI N+** improves the nitrogen supply of plants. Bacteria *Azotobacter sp.* efficiently fix atmospheric nitrogen. This contributes to the increase in the content of mineral nitrogen in the soil, which can be used by plants. **BACTIM® NUTRI N+** positively affects the nutritional status of plants in this element as well as the quality and quantity of yield.

Single dose: 400 mL/ha

BACTIM® NUTRI P+

BACTIM® NUTRI P+ is a bioproduct increasing the phosphorus supply of plants, containing efficient strains of bacteria *Bacillus spp.* Application of **BACTIM® NUTRI P+** improves the phosphorus supply of plants. Bacteria *Bacillus spp.* efficiently solubilize insoluble forms of phosphorus in soil. This contributes to the increased content of the plant available phosphorus in the soil, which can be used by plants. **BACTIM® NUTRI P+** positively affects the nutritional status of plants in this element as well as the quality and quantity of yield.

Single dose: 2 L/ha

BACTIM® SOIL

BACTIM® SOIL is a bioproduct that reduces soil degradation, promotes soil regeneration and accelerates decomposition of crop residues. **BACTIM® SOIL** contains humic co-formulant and up to 500 mln of *Bacillus spp.* bacterial cells in 1 ml of product, which have a multidirectional effect on the soil and plant.

Single dose: 1–2 L/ha

AMINOPRIM®

AMINOPRIM® is a product that activates resistance and rapid plant recovery after stress. Increases the effectiveness and safety of agrochemical treatments. Increases yield quantity and quality. Comprised of 50% amino acids.

Single dose: 0.2–0.5 L/100 L of water

MIKROVIT® BORON, BORON TURBO, BORON PLUS

Highly concentrated liquid fertilisers containing boron in the form of boron ethanoloamine - an organic form of boron that ensures greater uptake by plants compared to other inorganic sources of boron. **MIKROVIT® BORON PLUS** also contains molybdenum. Particularly recommended for soil conditions that limit the availability of B or Mo to plants.

Single dose: 0.15–1.5 L/ha

MIKROCHELAT™ Cu-15, Fe-13, Mn-13, Zn-15

MIKROCHELAT™ is a series of fertiliser chelates in the form of ultra granulate, which are recommended for foliar feeding, fertigation and hydroponics. Fertiliser microchelates are micronutrient products in which nutrients are delivered to plants in the chelated form, allowing plants to absorb them quickly and easily.

Single dose: 0.1–1 kg/ha

INTERMAG MIXING TABLE

1. ALKALIN™ PK 10:20	2. AMINO ULTRA® CITRUS	3. AMINO ULTRA® Cu SL	4. AMINO ULTRA® Cu SL	5. AMINO ULTRA® BORZIN	6. AMINO ULTRA® Fe-20	7. AMINO ULTRA® Fe SL	8. AMINO ULTRA® Mn-22	9. AMINO ULTRA® Mn SL	10. AMINO ULTRA® Zn-24	11. AMINO ULTRA® Zn SL	12. AMINO ULTRA® HORTI	13. AMINO ULTRA® MAIZE	14. AMINO ULTRA® OIL CROPS	15. AMINO ULTRA® CEREALS	16. AMINOPRIM®	17. MIKROVIT® BORON	18. MIKROVIT® BORON TURBO	19. PLONVIT® FOSTAR	20. GROWON®	21. JOSEK™	22. PLONVIT® KALPRIM	23. MIKROCHELAT™ Cu-15	24. MIKROCHELAT™ Fe-13	25. MIKROCHELAT™ Mn-13	26. MIKROCHELAT™ Zn-15	27. MIKROKOMPLEX®	28. MIKRO PLUS™	29. MIKRO PLUS™ ULTRA	1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29.
■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

Results of mixing tests: ■ May be mixed safely in recommended concentrations.

■ Mixing of fertilisers is not recommended.

■ Difficult mixing (e.g., with hard water and high pH) – in this case, it is advisable to use PROAQUA® TRIO, which to improve the physical and chemical properties of water.

INTERMAG MIXING TABLE

NAME	DESCRIPTION	DOSAGE	page
BIOSTIMULANTS			
TYTANIT®	YIELD BIOSTIMULANT Increases the amount of chlorophyll in leaves, which intensifies photosynthesis and positively affects biomass growth yield. Significantly improves the effectiveness of pollination, seed and fruit development, which results in yield increase. Improves absorption of nutrients from the soil.	FOLIAR: 0.2–0.4 L/ha	6
OPTYSIL®	IMMUNITY BIOSTIMULANT Increases plant tolerance to adverse growing conditions (e.g., drought and other abiotic stresses). Increases plant tolerance to biotic stress caused by pathogens and/or pest attacks. Stimulates young plants' root growth. Improves a crop's yield, quality and storage parameters.	FOLIAR: 0.5 L/ha FERTIGATION: 500 mL/ 1000 L/ha	8
OPTYSIL® LONGLIFE	SHELF LIFE EXTENDER Significantly improves the quality of the crop thanks to the unique combination of silicon and calcium. Increases the shelf life of fruit and vegetables by increasing firmness and mechanical resistance to damage.	FOLIAR: 1–1.5 kg/ha	10
VANADOO®	ROOT BIOSTIMULANT Intensifies the processes responsible for the formation of sugars in plants and increases the transport of sugars to the underground storage organs intended for harvest. Effectively improves the size and quality of plant storage organs. Recommended for use in the cultivation of plants with underground storage organs.	FOLIAR: 0.25 L/ha	12
PLANTICINE®	PLANT IMMUNIZER Activates the natural mechanisms of plant resistance by activating signaling pathways. Stimulates the production of defense proteins PR in all plant organs to prepare them to effectively combat threats from pathogens. Activates a number of genes responsible for regulating the plant's defense response.	FOLIAR: 2 L/ha	14
MICROBIAL PRODUCTS			
BACTIM® ENDOFIX	TECHNOLOGY THAT FIXES AND PROVIDES ATMOSPHERIC NITROGEN DIRECTLY TO THE PLANT BACTIM® ENDOFIX is a unique product based on the bacteria <i>Paenibacillus polymyxa</i> that penetrates the plant tissues (regardless of species) and provides it with additional nitrogen fixed directly from the air.	FOLIAR: 400 mL/ha	18
BACTIM® SOIL	EFFECTIVE SOIL REGENERATION Accelerates decomposition of crop residues, Increases the availability of nitrogen, phosphorus and potassium for plants. Increases content of humus in soil. Improves soil physicochemical properties and soil microbial activity.	SOIL APPLICATION: 1–2 L/ha	20
BACTIM® SAFE PK	SOIL PHOSPHORUS AND POTASSIUM MOBILIZATION Microbiological product that contains selected bacteria enhancing the efficiency of NPK fertilizer use due to their unique properties.	FOLIAR: 200 g/ha	22
BACTIM® TERRASTART	COMBINATION OF GRANULAR FERTILISER AND SAFE-P FORMULA High content of microbes solubilizing phosphorus. Protection of applied phosphorus against fixation in soil. Better development of root system and growth of seedlings.	DURING SEED SOWING: 5–15 kg/ha SEEDLING PLANTING: 5 kg/ha PREPARING SUBSTRATES: 1–2 kg/m ³	23
BACTIM® NUTRI N+	BIOPRODUCT INCREASING THE NITROGEN SUPPLY OF PLANTS Efficient fixation of nitrogen in soil. Higher content of mineral nitrogen in soil. Better nitrogen supply for plants.	SOIL APPLICATION: 400 mL/ha	24
BACTIM® NUTRI P+	EFFECTIVE SOLUBILIZATION OF PHOSPHORUS Efficient phosphorus solubilization in soil. Protection of phosphorus against fixation in soil. Better phosphorus supply for plants.	SOIL APPLICATION: 2 L/ha	26
BACTIM® FERTI	MICROBIAL BIOPRODUCT LIMITING THE INTENSITY OF SOIL-BORNE DISEASES Improves plant health status. Reduces the intensity and harmfulness of soil-borne diseases occurring in cultivation of fruits and vegetables. Improves the nutritional status of plants with phosphorus and zinc. Increases the content of available silicon in soil. Increases the content of humus in soil. Improves soil-physicochemical properties. Improves plant vigour. Increases yield.	FERTIGATION, SOIL SPRAY, WATERING: 2 L/ha	28
BACTIM® HORTI	MICROBIAL BIOPRODUCT LIMITING THE INTENSITY OF INFECTIONS OCCURRING ON ABOVE – GROUND PARTS OF PLANTS Better plant health status. Reduces the intensity and harmfulness of diseases occurring on above-ground parts of fruits and vegetables. Improves plant vigour. Increases yield.	FOLIAR: 2 L/ha	30
BACTIM® OMNIS	MICROBIAL BIOSTIMULANT LIMITING INFECTION INTENSITY OF CROPS Better plant health status. Reduces intensity and harmfulness of diseases occurring on above-ground parts of plants and of some soil-borne diseases. Better plant vigour. Higher plant yield.	FOLIAR, SOIL APPLICATION: 2 L/ha	32
BACTIM® PANTOEA CARE	MICROBIAL ENHANCER OF PLANT HEALTH Contains a high concentration of unique strains of <i>Pantoea</i> spp. bacteria, which are characterized by the ability to quickly colonize above-ground parts of plants.	FOLIAR: 0.5 kg/ha	34
BACTIM® VERSUS	MICROBIAL ENHANCER OF PLANT HEALTH Contains a high concentration of unique strains of <i>Bacillus</i> sp. and <i>Pantoea</i> sp. bacteria that work synergistically. The product limits the harmfulness of fungal and bacterial diseases.	FOLIAR: 1 L/ha	35
MYCOTIM VIGOR	MYCORRHIZA INOCULANT: A MICROBIOLOGICAL PRODUCT USED TO INCREASE PLANT YIELD AND VIGOR The biopreparation can be applied by various methods, including soil spraying prior to seeding or planting, foliar spraying during plant growth, and irrigation or fertigation to a wide range of crops, including vegetables, shrubs, and fruit trees.	SOIL APPLICATION/ FERTIGATION: 2 kg/ha	36
MYCOTIM NEMABLOCK	MYCORRHIZAL INOCULANT REDUCING HARMFULNESS OF NEMATODES Biopreparation containing unique consortium of mycorrhizal fungi and bacteria. The product is recommended for cultivations exposed to nematodes.	SOIL APPLICATION/ FERTIGATION: 2 kg/ha	37
PRODUCTS FOR SEEDS			
PRIMSEED® MULTI	SEED FERTILISER Provides germinating seeds with essential nutrients and strengthens the condition of plants in the early stages of development. Colours the treated seeds, which enables better identification of the seed material.	SEED TREATMENTS: 0.2–0.3 L + 0.5–1.2 L of water / 100 kg of seeds	40
PRIMSEED® BIOM CEREALS	MICROBIOLOGICAL SEED PRODUCT INCREASING PLANT HEALTH Improves the composition of the rhizosphere microbiome of seedlings and the immediate environment of sprouting seeds by creating a microbial barrier that hinders the development of pathogens. Biostimulating effect on plants.	SEED TREATMENTS: 0.2–0.3 L + 0.8–0.9 L of water / 100 kg of seeds	41
PRIMSEED® BIOM SOYBEAN	INOCULANT FOR SOYBEAN SEEDS Contains bacteria <i>Bradyrhizobium</i> , which effectively improves the formation of root nodules and effectively fixes atmospheric nitrogen.	SEED TREATMENTS: 0.2 L + 1–1.2 L of water / 100 kg of seeds	42
PRIMSEED® BIOM HORTI	MICROBIOLOGICAL PRODUCT FOR SEED TREATMENT Accelerates and evens emergence. Stimulates the growth and development of the root system. Improves the supply of plants with phosphorus and nitrogen.	SEED TREATMENTS: 50 g/number of seeds per 1 ha	–
PRIMSEED® NOD PEA	PRODUCT INTENDED FOR SEED TREATMENT OF PEA, BROAD BEAN, VETCH AND HORSE BEAN Effectively stimulates the formation of root nodules, eliminating the impact of adverse environmental factors on nodulation. Contains signaling substances (i.e., NOD factors) that activate plant proteins responsible for the processes of formation and development of nodules.	SEED TREATMENTS: 1 ml + 1 L of water / 100 kg of seeds	43

NAME	DESCRIPTION	DOSAGE	page
ACTIVATORS			
GROWON®	ENERGY ACTIVATOR Stimulates root growth and formation of plants intended for harvest mainly in soil and air with low temperatures and in acidic soils. Improves quantity and quality of yield.	FOLIAR: 1–5 L/ha	46
OPTYCAL®	CALCIUM ACTIVATOR Ensures optimal supply of calcium by stimulating calcium uptake from the soil and enhancing transport to the youngest parts of the plant (auxin-calcium pump effect). Directly provides easily assimilable organic calcium in foliar treatment. Improves fruit and vegetable quality and crop storability.	FOLIAR: 1–1.5 kg/ha	47
ROOTSTAR®	PLANT ROOTING ACTIVATOR Improves plant rooting in the early stages of development. Improves the process of root growth and development after stress conditions. Increases plant tolerance to stress associated with low soil temperature and water deficiency.	FOLIAR: 0.8–1.2 L/ha	48
HUMMER™	HUMIC SOIL ACTIVATOR Organo-mineral fertiliser containing humic substances, vitamin B1 and potassium intended for improving soil physico-chemical properties and supporting the development of soil microorganisms.	SOIL SPRAY, FERTIGATION: 10–20 L/ha	49
 AMINOPRIM®	RECOVERY ACTIVATOR Stimulates resistance and rapid plant recovery after stresses. Increases the effectiveness and safety of agrochemical treatments. Increases yield quantity and quality. Comprised of 50% amino acids.	FOLIAR: 0.2–0.5 L/100 L of water	50
AMINOPRIM® PLANTACEA	RECOVERY ACTIVATOR Product containing biologically active amino acids of plant origin. Intended for foliar application to increase stress tolerance and accelerate regeneration after stress conditions.	FOLIAR: 0.3–0.6 L/100L of water	51
AGROCHEMICALS			
N HEROSIL™	SILICONE ADJUVANT Thanks to its advanced technology, it significantly reduces surface tension and enables optimal coverage of the plant surface.	0.1 L/ha	76
PROAQUA® TRIO	WATER CONDITIONER Improves the physicochemical properties of water used for preparing solutions for foliar treatment and plant protection. Neutralizes the negative properties of hard water and lowers the solution's pH, thereby increasing the efficiency of fertilisers and plant protection products.	0.1–0.2 L per 100 L	77
ADITENS™ MAX	SYSTEMIC ADJUVANT Ensures better coverage of the sprayed surface with a solution. Increases the efficiency of applied agrochemicals. Accelerates assimilation and transport of agrochemical active ingredients.	50–100 mL per 100 L	78
FASTER®	ANTI-FOAMING ADJUVANT Facilitates the application, coverage and retention of spray solution on the surface of leaves. Reduces the formation of foam in the spray tank. Improves the effectiveness of agrochemicals.	0.1 L per 100 L	78
STRETCH™	SEALING PRODUCT Limits the uncontrolled shattering of rapeseeds and legumes. Limits grain sprouting in the ear.	1 L/ha	79
PESTICLEAN™	CLEANING AGENT FOR SPRAYERS Removes residues of plant protection products (e.g., residues of sulfonylurea herbicides) and other sediments, including fatty substances.	0.2–0.25 L per 100 L	79

NAME	NUTRIENT CONTENT [g/L or g/kg]													DIRECTION OF USE detailed instructions on product labels	page	
	N total	P ₂ O ₅	K ₂ O	CaO	MgO	Na ₂ O	SO ₃	B	Co	Cu	Fe	Mn	Mo	Zn	ENRICHED	
FOLIAR FERTILISERS																
 PLONVIT® ACTIVE NUTRIBOOST™	67.5			27		69	5.5		2.7	22	17.6	0.27	17.6			56
 PLONVIT® CEREALS NUTRIBOOST™	67.5			27		88	0.54		5.4	23	23	0.27	17			
 PLONVIT® OIL CROPS NUTRIBOOST™	67.5			27		80	8.6		3.2	17.3	21.6	0.27	17.3			
 PLONVIT® MAIZE NUTRIBOOST™	66			26.4		69	9.4		2.6	4.4	11.2	0.25	35			
 PLONVIT® LEGUMES NUTRIBOOST™	65.5			26.2		65.5	9.2	0.92	9.2	14.4	18.5	0.28	14.4			
 PLONVIT® POTATO NUTRIBOOST™	66.5			26.6		69	9.3		6.1	9.8	19.3	0.14	21.3			
 PLONVIT® SUGAR BEET NUTRIBOOST™	65.5			26.2	31.5	45.8	9.2		4.1	21	18.3	0.09	13.1			
 AMINO ULTRA® CEREALS	44						1.8		18	70	75	0.7	55			60
 AMINO ULTRA® MAIZE	40						16		8	68	57	0.8	60			
 AMINO ULTRA® OIL CROPS	47						21		7	53	85	0.7	55			
 AMINO ULTRA® HORTI	37						13		5	85	54	0.95	22			
N AMINO ULTRA® CITRUS	53										115		115			
 AMINO ULTRA® Cu-24	50							240							62	
 AMINO ULTRA® Fe-20	44								200							
 AMINO ULTRA® Mn-22	54									220						
 AMINO ULTRA® Zn-24	52										240					
 AMINO ULTRA® BORZIN	10			10		73	110						50		63	
 AMINO ULTRA® Cu SL	15							71								
 AMINO ULTRA® Fe SL	10								49							
 AMINO ULTRA® Mn SL	14									57						
 AMINO ULTRA® Zn SL	26												121		64	
N AMINO ULTRA® ACTIVE SL	56								6	27	27		20			

NAME	NUTRIENT CONTENT [g/L or g/kg]													DIRECTION OF USE		page		
	N _{total}	P ₂ O ₅	K ₂ O	CaO	MgO	Na ₂ O	SO ₃	B	Co	Cu	Fe	Mn	Mo	Zn	ENRICHED			
FOLIAR FERTILISERS													FOLIAR		FERTIGATION			
 MIKROCHELAT™ Cu-15	55								150						0.1–1 kg/ha	Adjust the composition of nutrient solution and application frequency to match the plant requirements and type of substrate.	69	
 MIKROCHELAT™ Fe-13	65								130						0.2–1 kg/ha			
 MIKROCHELAT™ Mn-13	64								130						0.25–1 kg/ha			
 MIKROCHELAT™ Zn-15	64									150					0.2–1 kg/ha			
 MIKROVIT® BORON	41						150								0.2–1.5 L/ha	–	69	
 MIKROVIT® BORON TURBO	41						150								0.15–1.2 L/ha	–	65	
 MIKROVIT® BORON PLUS							150				5,5				0.2–1.5 L/ha	–	65	
MIKROVIT® COPPER	52							75							0.2–2 L/ha	–	69	
N MIKROVIT® COMO								23		35					3–4 L/ha	–		
MIKROVIT® ZINC	37										112				0.5–2 L/ha	–		
MIKROVIT® MANGANESE	33								160						0.5–2 L/ha	–		
MIKROVIT® MOLYBDENUM	45									33					0.5–1 L/ha	1–2 mL per 1000 L		
MIKROVIT® IRON	28								75						0.5–2 L/ha	–		
PLONVIT® BOROSULF	60			53	275	80				10	0.4	1			0.5–3 kg/ha	–	69	
PHOSPHORO-ZINC	77.4	500									30				3–6 L/ha	–	66	
MACRONUTRIENT FERTILISERS													FOLIAR		FERTIGATION			
PLONVIT® OPTY GCAA	200	200	200				0.3		0.3	1.5	0.7	0.02	0.7		2–5 kg/ha	Adjust the composition of nutrient solution and application frequency to match the plant requirements and type of substrate.	68	
PLONVIT® NITRO GCAA	310	120	100				0.3		0.3	1.5	0.7	0.02	0.7		2–5 kg/ha			
PLONVIT® PHOSPHO GCAA	110	530	50				0.3		0.3	1.5	0.7	0.02	0.7		2–5 kg/ha			
PLONVIT® KALI GCAA	110	120	380				0.3		0.3	1.5	0.7	0.02	0.7		2–5 kg/ha			
PLONVIT® ACTION	130	130	130				0.13		0.05	0.4	0.13	0.013	0.065		1–9 L/ha	0.3–2 L/1000 L	–	66
PLONVIT® UP	155	143	60				0.12		0.05	0.36	0.12	0.012	0.06		1–9 L/ha	0.3–2 L/1000 L		
PLONVIT® ENERGY	65	325	65				0.13		0.05	0.4	0.13	0.013	0.065		1–9 L/ha	0.3–2 L/1000 L		
PLONVIT® QUALITY	53	53	212				0.13		0.05	0.4	0.13	0.013	0.07		1–9 L/ha	0.3–2 L/1000 L		
PLONVIT® GEL 20/20/20	200	200	200				0.3		0.7	1.4	0.7	0.014	0.7		2–5 L/ha	–	69	
MIKROKOMPLEX®				160	320	0.5		3		3.5	0.1	2			3–7 kg/ha	0.1–1 kg per 1000 L	69	
PLONVIT® FOSTAR	70	500													2–6 L/ha	–	66	
PLONVIT® KALPRIM	45		400												3–6 L/ha	–		
PLONVIT® NITROMAG	370			40	12.2	0.27		3.0	0.4	11.0	0.05	0.27			2–6 L/ha	–		
PLONVIT® SULVIT	200					760									2–6 L/ha	–		
PLONVIT® UNI PK 14:24	35	136	245												3–6 L/ha	–		
PLONVIT® PK 28:30		280	302												3–6 L/ha	–		
PLONVIT® PK 49:12		490	125												3–6 L/ha	–		
N PLONVIT® N37	370			18		0.26		1.3	2.6	1.3	0.07	0.26			2–6 L/ha	–		
PLONVIT® CALCIUM TURBO	128			260	10		0.75	0.3		0.0015	0.3				2–6 L/ha	–	67	
FERTILISERS FOR FERTIGATION													FOLIAR		FERTIGATION			
MIKROCHELAT™ Fe-11									110						Adjust the composition of nutrient solution and application frequency to match the plant requirements and type of substrate.	73		
MIKROCHELAT™ Fe-6 SL									76									
MIKROCHELAT™ Mn-6 SL									78						0.5–1.5 L/ha	–	69	
MIKRO PLUS™					2.3			1.2	23.6	9.5	0.59	3.5			30–100 mL per 1000 L	72	69	
MIKRO PLUS™ ULTRA					7			4	63	28	1.5	9			10–40 g per 1000 L			
DROPFERT® 9/10/36 + micro	90	100	360	20	93	0.2		0.1	1.2	0.6	0.03	0.25			0.3–2 kg per 1000 L	69		
DROPFERT® 4/40/13 + micro	40	400	130	60	126	0.2		0.1	1.2	0.6	0.03	0.25						
DROPFERT® 18/18/18 + micro	180	180	180	3	18.5	0.2		0.1	1.2	0.6	0.03	0.25						
DROPFERT® 14.5/7.5/18.5	145	75	185	30	215	0.2		0.1	1.2	0.6	0.03	0.25						

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