



CATALOGUE OF FERTILIZERS

2021

 ecoorganic®



## **Dear Partners!**

Mineral nutrition of plants, including foliar, is one of the most important factors influencing the quantity and quality of the yield. The use of foliar fertilization has proven to be highly efficient in the technology of growing of all crops, without exception. The advantages of this method of fertilization are accurate dosing, rapid absorption of elements, possibility to apply, in a tank mix with other products, some biologically active substances in those periods when plants cannot synthesize them independently in the required quantities.

Deeply understanding the problems of agricultural producers in the field of foliar nutrition, "ECOORGANIC" company, as a high-tech research and production enterprise, offers the latest innovative solutions in this segment of production, which meet world quality standards due to the following factors:

- fertilizer production takes place at our own modern chemical plant, on European equipment, fully automated;
- the company's warehouse complexes provide optimal storage conditions for the products;
- highly qualified chemists and laboratory assistants conduct researches to optimize the composition of micro fertilizers and carry out quality control at each stage of production: during preparation of raw materials; directly in the process of synthesis; checking the composition of the product and its stability after the synthesis; before admitting the product to packaging; controlling the volume during packaging;
- field research is constantly conducted to verify the biological effectiveness of products and improve plant nutrition systems.

The company has been operating on the market for 10 years and thousands of farmers have successfully tested the effectiveness of ECOORGANIC fertilizers in their own fields!

This catalog of "ECOORGANIC" contains updated information on fertilizers of the lines "ECOLINE" and "GROS", recommendations for their use, foliar fertilization schemes for major crops. Here you will also find information on high-performance liquid start complex fertilizers of "FITOSTART" and "MULTISTART" lines, which are offered for soil and foliar application on different crops.

**We are sure that our cooperation will be long-lasting and effective!**

**Sincerely, ECOORGANIC**

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## Chemical composition of "ECOORGANIC" fertilizers

Brand of fertilizer	Content of nutritional elements,% vol.																
	Macronutrients			Mesonutrients				Micronutrients					Amino-acids	Phyto-hormones	pH	Density	
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	CaO	MgO	SO <sub>3</sub>	SiO <sub>2</sub>	Fe	Mn	B	Zn	Cu					Mo
Boron fertilizers																	
ECOLINE Boron (Premium)	4,5									14,0				1,0		8,0	1,34
ECOLINE Boron (Organic)	6,5									15,5						8,0	1,37
ECOLINE Boron (Opti)	3,5									8,0	0,5		0,05			8,0	1,2
Phosphite fertilizers																	
ECOLINE Phosphite (K)	0,6	53,0	35,0							1,4						6,5	1,5
ECOLINE Phosphite (K-Zn)		32,0	21,0							0,8	3,5					6,0	1,4
GROS Phosphito-LNPK	20,0	20,0	15,0											2,0		6,5	1,28
GROS Phosphito-NP	30,0	60,0														5,0	1,43
Antistress																	
ECOLINE Phosphite (K-Amino)	4,0	25,0	17,0							0,7				7,0		6,0	1,3
ECOLINE Universal Growth (Amino)	9,0		4,0		1,5			0,2	0,2	0,2	0,4	0,1	0,05	7,5		6,5	1,2
GROS Amino-Zn	2,5										2,0			10,0		6,5	1,15
GROS Health	2,7													12,0		6,0	1,1
Fertilizers with L-α-amino acids and phytohormones																	
GROS Rootgrowth	3,0	5,0	3,0											3,0	22 ppm	6,0	1,09
GROS Quitselium								2,4	0,6	0,24	0,6	0,6	0,02	2,0	60 ppm	7,5	1,16
GROS Amino-Mg	9,0				12,0									8,0		6,0	1,3
GROS Silicon			12,0			24,0								2,0		10,5	1,26

# Chemical composition of "ECOORGANIC" fertilizers

Content of nutritional elements,% vol.																		
Brand of fertilizer	Macronutrients			Mesonutrients				Micronutrients							Phyto-hormones	Amino-acids	pH	Density
	N	P <sub>2</sub> O <sub>3</sub>	K <sub>2</sub> O	CaO	MgO	SO <sub>3</sub>	SiO <sub>2</sub>	Fe	Mn	B	Zn	Cu	Mo	Co				
Monochelates																		
ECOLINE Zinc (Chelate)	3,6										8,5					7,0	1,3	
ECOLINE Copper (Chelate)	3,0					8,0						6,5				7,0	1,28	
ECOLINE Manganese (Chelate)	3,0									6,0						7,0	1,3	
ECOLINE Calcium-Boron (Chelates)	2,5			5,0							0,8					7,5	1,2	
ECOLINE Iron (Chelate)	3,0							6,0								6,5	1,2	
Complex chelates																		
ECOLINE Magnesium (Chelates)	3,5				4,7	4,0		0,46	0,23	0,23	0,35	0,12				7,5	1,2	
ECOLINE Cereal (Chelates)	19,5		6,0		3,5	5,2		0,5	1,7	0,15	0,4	1,0				6,5	1,3	
ECOLINE Legumes (Chelates)	11,0		10,0		2,8	4,2		0,56	0,84	0,32	0,14	0,28	0,05	0,05		6,5	1,2	
ECOLINE Corn (Chelates)	16,0		10,6		2,5	5,4		0,8	0,8	0,4	2,0	0,8				6,5	1,3	
ECOLINE Oilseed (Chelates)	11,0		6,0		2,8	7,0		0,8	1,7	2,1	0,7	0,3				6,5	1,3	
ECOLINE Molybdenum (Complex)	4,0	25,0											7,0			5,5	1,3	
ECOLINE Beetroot (Chelates)	8,0		8,0		2,8			0,8	2,1	2,1	0,7	0,28		0,05		6,5	1,3	
ECOLINE Fruit (Chelates)	7,2		9,0	2,4	1,2			0,8	0,5	0,6	0,6	0,4	0,01			7,5	1,3	
ECOLINE Vegetable (Chelates)	9,0		7,0	3,5	2,5	3,0		0,9	1,5	0,9	0,15	0,8	0,02			7,5	1,3	
ECOLINE Universal Growth (Chelates)	15,0		4,0		3,5	3,5		0,8	1,1	0,42	1,1	0,42	0,01			6,5	1,3	

Chemical composition of "ECOORGANIC" fertilizers

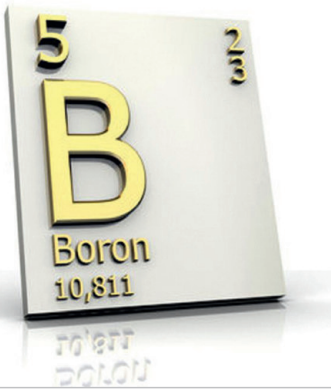
Brand of fertilizer	Content of nutritional elements,% vol.																pH	Density
	Macronutrients			Mesonutrients				Micronutrients						Amino-acids	Phyto-hormones			
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	CaO	MgO	SO <sub>3</sub>	SiO <sub>2</sub>	Fe	Mn	B	Zn	Cu	Mo			Co		
	Liquid start fertilizers, % mass.																	
FITOSTART Fast	3	18	18														7.0	1.36
FITOSTART Jet	8	24															7.5	1.3
FITOSTART Power		21	22														7.5	1.42
FITOSTART Energy	4	21	14														7.0	1.41
FITOSTART Sprint	6	24	6														7.0	1.31
FITOSTART Balance	10	10	10														7.5	1.27
FITOSTART Potassium			24														9.5	1.27
FITOSTART Supraphos		60															2.5	1.41
MULTISTART Corn	9	25						0.2	0.4	0.1	0.2	0.1	0.03				6.8	1.28
MULTISTART Sunflower	9	25						0.15	0.3	0.5	0.3	0.05	0.01				6.8	1.28
MULTISTART Legumes	9	25						0.2	0.2	0.1	0.4	0.1	0.05	0.01			6.8	1.28
MULTISTART Beetroot	9	25						0.15	0.5	0.4	0.2	0.05	0.02	0.02			6.8	1.28
MULTISTART Universal	9	25						0.15	0.3	0.3	0.3	0.05	0.02				6.8	1.28

# **BORON FERTILIZERS**

An abstract geometric pattern consisting of interconnected lines and dots. The dots are in two colors: white and dark green. The lines are also in two colors: white and dark green. The pattern is set against a solid green background. The lines and dots form a complex, web-like structure that is denser on the right side of the image and sparser on the left.



# BORON FERTILIZERS



## THE ROLE OF BORON IN PLANT NUTRITION

In plants, boron participates in the creation of cellular structures and in the normal differentiation of tissues. The role of boron in cell division, protein synthesis is important, it is also a necessary component of cell membranes. Boron improves absorption of nutrients and transportation of carbohydrates from the leaves to the roots and reproductive organs. Extremely important role of boron is in the flowering process and pollination. In its absence, pollen loses viability, the pollination process is not complete. In the absence of boron, sugars accumulate in the leaves and hardly move to the commodity part of the crop. Typical signs of boron deficiency are the death of growth points, the formation of cavities in the roots, disruption of vascular tissues of plants, disorders in the formation of reproductive organs.

Crops respond differently to boron supply. Dicotyledonous plants (sugar beets, sunflower, oilseed rape, almost all vegetables and fruits) absorb almost 10 times more boron than monocotyledons (cereals). A lot of boron accumulates in the pulp of the fruit. Boric starvation of plants is more pronounced during drought and when the soil pH changes to the alkaline side.

Boron fertilizers should be applied depending on the results of soil and plant analysis or preventively on the sensitive crops. Manifestations of acute boron deficiency, which can be visually observed, are almost impossible to eliminate.

# ECOLINE

## Boron (*Premium*)

Element		%
Nitrogen	N-NH <sub>2</sub>	4,5
Boron	B	14,0
Amino acids	L-α	1,0
Density - 1,34		
pH - 8,0		



Liquid fertilizer in the form of organic boron complex with monoethanolamine and free L-α-amino acids for oilseed rape, sugar beets, sunflower, potatoes, grapes, fruit and vegetable crops. Active ingredients: Boron, amines of monoethanolamine and L-α-amino acids of plant origin. The fertilizer is effective when plants are in stress caused by unfavorable weather conditions. Boron is necessary for the normal formation of pollen and ovaries; it is involved in the transportation of sugars. Boron deficiency disrupts formation of cell walls, which deteriorates appearance of the fruits, reduces yield, fruit quality and shelf life.

### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Oilseed rape	Autumn (spring) 4 - 6 leaves	1,0
	Beginning of budding	1,0 - 1,5
Sunflower	3 - 8 pairs of leaves	1,0 - 2,0
	The "star" phase	1,0
Soybean	Beginning of budding	0,5 - 1,0
Corn	6 - 8 leaves	0,5 - 1,0
Fruit and berry crops	Pink bud	1,5 - 2,0
	Fruit formation	0,5 - 1,0
Vegetables	Before flowering – fruit formation	0,5 - 1,0
Grapes	Before flowering	1,0 - 1,5
	Before ripening	0,5 - 1,0
Sugar beets	Row closure	0,5 - 1,0
	Last fungicide treatment	1,0 - 1,5
Potatoes	Stem formation	0,5 - 1,0

- ✓ The fertilizer contains L-α-amino acids
- ✓ It facilitates plants recovery after stress impact (drought), ground frost, pesticides application, etc.)
- ✓ It increases dry matter content in fruits and vegetables

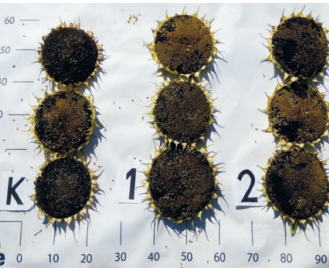
INFLUENCE OF FOLIAR NUTRITION SYSTEMS BASED ON BORON FERTILIZERS ON PLANT DEVELOPMENT AND SUNFLOWER YIELD

Farm ROMANIV  
Demo field of «Pioneer Nasinnia Ukraina»  
village Romaniv, Volyn region, 2019\*

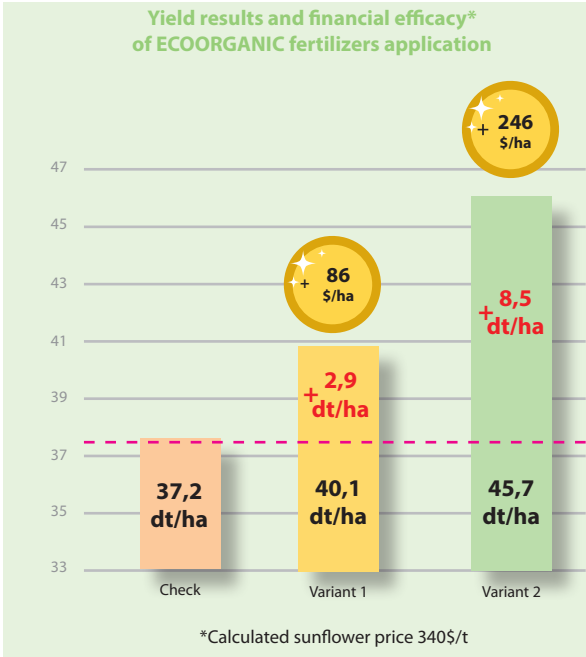
Variants	Stages of development	
	3-5 pairs of true leaves	6-8 pairs of true leaves
Check	Farm's system	Farm's system
Variant 1	ECOLINE Boron (Premium) 1,0 l/ha	ECOLINE Boron (Organic) 1,0 l/ha + ECOLINE Oilseed (Chelates) 1,0 l/ha
Variant 2	ECOLINE Boron (Premium) 1,0 l/ha + GROS Phosphito-NP 1,5 l/ha	ECOLINE Boron (Organic) 1,0 l/ha + ECOLINE Phosphite (K-Amino) 2,0 l/ha



Intermediate check 13.06.2019



Intermediate check 19.08.2019



\*You can find the results of field and demonstration trials of 2017, 2018, 2019, 2020 in the corresponding brochures “Results of ECOORGANIC fertilizers application” which can be downloaded on the website [www.ecoorganic.ua](http://www.ecoorganic.ua)

## MANIFESTATIONS OF BORON DEFICIENCY IN SUNFLOWER





# ECOLINE

## Boron (Organic)

Element		%
Nitrogen	N-NH <sub>2</sub>	6,5
Boron	B	15,5
Density - 1,37		
pH - 8,0		

Highly concentrated liquid boron micro-fertilizer. It is made to remove boron deficiency demonstrations, and for foliar nutrition of plants, especially demanding for Boron provision. It contains Boron as an organic complex with monoethanolamine. The fertilizer can be used together with plant protection products. It provides for stress and cold resistance of the plants.

### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Oilseed rape	Autumn (spring) 4 - 6 leaves	1,0
	Beginning of budding	1,0 - 1,5
Sunflower	3-8 pairs of leaves	1,0 - 2,0
	The "star" phase	1,0
Soybeans	Beginning of budding	0,5 - 1,0
Corn	6 - 8 leaves	0,5 - 1,0
Fruits and berries	Pink bud	1,5 - 2,0
	Fruit formation	0,5 - 1,0
Vegetables	Before flowering – fruit formation	0,5 - 1,0
Grapes	Before flowering	1,0 - 1,5
	Before ripening	0,5 - 1,0
Sugar beets	Row closure	0,5 - 1,0
	Last fungicide treatment	1,0 - 2,0

- ✓ Regulation of boron nutrition during critical stages of plant development
- ✓ Improvement of stress and cold resistance of plants
- ✓ Regulation of flowering
- ✓ Harvest quality improvement

Approved for use in organic agriculture according to the Standard of Organic Production and Processing which is Equivalent of European Union Regulation No 834/2007 and No 889/2008 (Organic Standard Certificate No20-0529-05/01)





# ECOLINE

## Boron (Opti)

Element		%
Nitrogen	N-NH <sub>2</sub>	3,5
Boron	B	8,0
Zinc	Zn	0,5
Molybdenum	Mo	0,05
Density - 1,2		
pH - 8,0		



Liquid fertilizer in the form of organic Boron complex with monoethanolamine, with added Zinc chelate and Molybdenum. It is recommended for the crops which are sensitive to Boron, Zinc and Molybdenum deficiency in the first part of their vegetation, namely oilseed rape, sugar beets, sunflower, potatoes, grapes, fruits, vegetables, berries.

Boron takes part in sugars transportation, protects auxins from before time degradation, is needed for normal pollen and ovary formation. Zinc promotes auxin synthesis in the plant, hence provides for more intensive growth and plant moisture saving. Molybdenum takes part in sugars synthesis and activates nitrite and nitrate reductase, which intensifies nitrogen assimilation by the plant.

### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Winter oilseed rape	6 leaves - rosette (autumn)	1,0 – 1,5
Legumes	Budding - pods formation	1,0
Corn	6 - 8 leaves - tasseling	1,0 – 2,0
Sugar beets	3 - 4 pairs of leaves - crop cover	1,5 – 2,5
Sunflower	4 - 6 pairs of leaves - "star" phase	1,0 – 2,0
Potatoes	Stem formation - flowering	1,5 – 2,0
Vegetables	From engraftment of seedlings till the beginning of ripening	2,0 – 3,0
Fruits	Beginning of fruit formation - ripening	1,0 – 1,5
Berries	Beginning of fruit formation - ripening	1,0 – 1,5

- ✓ The boron-molybdenum complex enhances the intensity of physiological processes in the plants
- ✓ The combination of boron with zinc provides a more complete absorption of boron under high temperature conditions

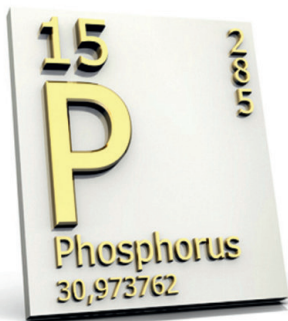
Approved for use in organic agriculture according to the Standard of Organic Production and Processing which is Equivalent of European Union Regulation No 834/2007 and No 889/2008 (Organic Standard Certificate No20-0529-05/01)





The background is a solid green color. Overlaid on this is a complex, abstract geometric pattern. It consists of numerous thin, light-colored lines that connect various points. Some of these points are represented by small, solid dark green circles, while others are represented by larger, white circles with dark green outlines. The lines and points are scattered across the right side of the image, creating a sense of depth and connectivity, reminiscent of a molecular structure or a network diagram.

# **PHOSPHITE FERTILIZERS**



# PHOSPHITE FERTILIZERS

## ADVANTAGES OF PHOSPHORUS IN THE FORM OF PHOSPHITE

1. The assimilation of phosphorus in the form of phosphite  $\text{PO}_3^3$  by the plant is more intensive than in the form of phosphates  $\text{PO}_4^3$ . When applied on the leaf, 65-75% of phosphorus in the form of phosphite is absorbed within 1 day, while only 20% of phosphate is absorbed in 5 days.

2. The efficacy of phosphites as fungicides and biostimulants is based on the induction of plant resistance to biotic and abiotic stresses that through the synthesis of phytoalexins, which are the key to active immunity.

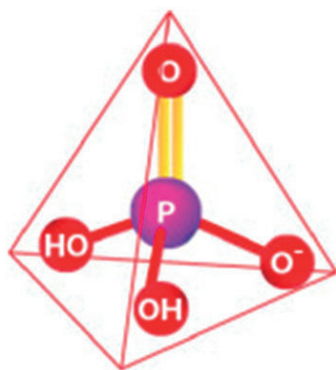
Phytoalexins are a group of organic protein substances which are produced by a plant in response to stresses or pathogens. These substances are part of the natural immune mechanism of the plant.

3. It is proved that phosphites directly inhibit the development of Phytophthora microorganisms in the root system, as well as stimulate the protective mechanisms of the plant itself. In addition, phosphites suppress and destroy the manifestations of such diseases as downy mildew, scabies, bacteriosis, mildew and the like. Phosphites have a negligible effect on the development of most soil fungi, which makes their use, in the recommended norms, environmentally friendly and safe. The stability of phosphites in the plant over a long period of time is a key factor of their effectiveness in disease control.

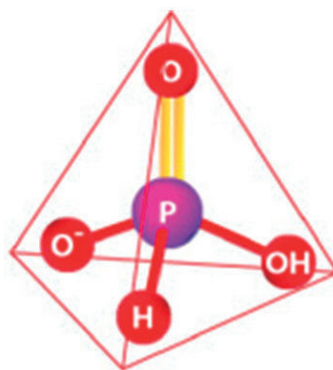
4. When applied on the leaf, phosphites, in addition to the fungicide effect, are involved or affect a large number of processes. Thus, phosphorus from phosphite participates in metabolism in plants, which is manifested in increased growth of the root system, assimilation of other elements of mineral nutrition, synthesis of phosphorus-containing biologically active substances, fatty acids, nucleic acids. Phosphites help to increase yield, dry matter content, carotenoids, anthocyanins and improve marketability of the fruits.

## THE ROLE OF PHOSPHATES AND PHOSPHITES IN PLANT NUTRITION

PHOSPHATE	PHOSPHITE
<b>Main function</b>	
Source of phosphorus	Fungicide
	Bio stimulator
	Antistressant
	Becomes a source of phosphorus after conversion in the cells
<b>Assimilation temperature</b>	
$\geq +15^{\circ}\text{C}$	$\geq +5^{\circ}\text{C}$
<b>Assimilation time</b>	
From a couple of days till a couple of weeks	Within 24 hours
<b>Interaction with other nutrition elements</b>	
Interacts with $\text{Ca}^{+3}$ , $\text{Fe}^{+3}$ , $\text{Al}^{+3}$ , creating inaccessible forms of these elements	No inaccessible forms found when interacting with $\text{Ca}^{+3}$ , $\text{Fe}^{+3}$ , $\text{Al}^{+3}$
<b>Impact on plants</b>	
Stimulates root system growth	Stimulates root system growth
Improves yield quantity and quality	Improves chlorophyll production
	Helps the plants to overcome stresses
	Improves yield quantity and quality
	Helps nitrogen uptake at low temperatures ( $\geq +5^{\circ}\text{C}$ )
<b>Other characteristics</b>	
	Excellent compatibility with crop protection products in tank mixes. Improvement of CPP efficacy due to buffer properties of phosphites



PHOSPHATE ( $\text{H}_2\text{PO}_4$ )



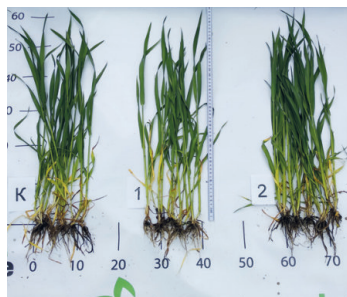
PHOSPHITE ( $\text{H}_2\text{PO}_3$ )



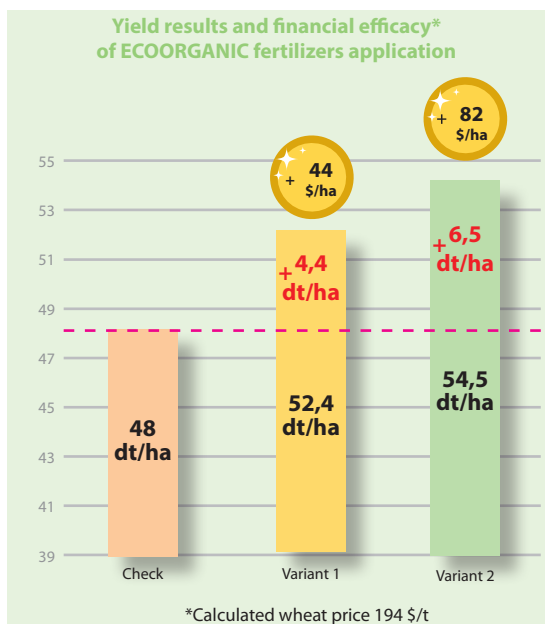
# INFLUENCE OF PHOSPHITE-BASED NUTRITION SYSTEM ON PLANT DEVELOPMENT AND YIELD OF WINTER WHEAT

**Farm YUVIS PLUS**  
**Village Dorozhne, Vinnytska oblast, 2019\***

Variants	Stage of development			
	Seed treatment	Tillering (spring)	End of tillering	Flag leaf
Check	No treatment	No treatment	Farm's system	No treatment
Variant 1	GROS Rootgrowth 2,0 l/t	ECOLINE Cereal (Chelates) 1,0 l/ha + ECOLINE Phosphite (K) 1,0 l/ha	ECOLINE Cereal (Chelates) 1,0 l/ha	ECOLINE Phosphite (K) 1,5 l/ha
Variant 2	ECOLINE Phosphite (K) 2,0 l/t	ECOLINE Cereal (Chelates) 1,0 l/ha + GROS Phosphito-NP 1,0 l/ha	ECOLINE Phosphite (K-Amino) 1,0 l/ha	ECOLINE Cereal (Chelates) 1,0 l/ha



Intermediate check 14.05.2019



\*You can find the results of field and demonstration trials of 2017, 2018, 2019, 2020 in the corresponding brochures "Results of ECOORGANIC fertilizers application" which can be downloaded on the website [www.ecoorganic.ua](http://www.ecoorganic.ua)

# ECOLINE

## Phosphite (K)

Element		%
Nitrogen	N-NH <sub>2</sub>	0,6
Phosphorus (phosphite)	P <sub>2</sub> O <sub>5</sub>	53,0
Potassium	K <sub>2</sub> O	35,0
Boron	B	1,4
Density - 1,5		
pH - 6,5		



Innovative fertilizer with the highest phosphorus (in the form of phosphite) and potassium concentration. It can be used for foliar nutrition of different crops. It enhances the growth of the root system, increases the resistance of plants to fungal pathogens. The fertilizer increases the content of spare nutrient substances in the fruits, which improves their quality.

### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Cereals, legumes, corn, sunflower	Pre-sowing seed treatment	0,5 – 1,0 l/t
Winter (spring) cereals	Tillering (autumn and spring)	1,0 – 2,0
	Tube exit	0,8 – 2,0
Legumes	Pods formation, ripening	1,5
Winter oilseed rape	4 - 6 leaves (autumn)	1,0 – 1,5
	8 - 12 leaves (spring)	1,0 – 2,0
Spring oilseed rape	4 - 6 leaves	1,0 – 1,5
Potatoes	Budding - beginning of flowering	1,0 – 2,0
Tomatoes, paprika	Beginning of fruit formation	2,0
Malt barley	Ear formation	0,5 – 2,0
Sunflower	6 - 8 pairs of leaves	1,0 – 1,5
	Seeds formation	1,0 – 2,0
Corn	3 - 5 leaves	1,0 – 1,5
	6 - 9 leaves	1,0 – 1,5
Grapes	Begining of flowering	1,0 – 2,0
Fruits and berries	Beginning of fruit formation	1,0 – 2,0
	After harvesting	2,0 – 4,0

- ✓ The highest phosphorus (phosphite) and potassium content among all other similar products
- ✓ Stimulates the synthesis of phytoalexins in a plant, which are natural immunity protectors
- ✓ Has a fungicidal effect on a wide range of pathogens of the class Oomycetes - late blight, downy mildew, mildew, etc.
- ✓ Increases yield. Improves the yield quality
- ✓ Ecologically safe – no toxic effect on the environment



# ECOLINE Phosphite (K-Zn)

Element		%
Phosphorus (phosphite)	P <sub>2</sub> O <sub>5</sub>	32,0
Potassium	K <sub>2</sub> O	21,0
Zinc	Zn	3,5
Boron	B	0,8
Density - 1,4		
pH - 6,0		

Liquid innovative fertilizer in the form of organic and mineral complex of potassium phosphite with organic boron complex and zinc chelate. It is used to enhance the growth of the root system, improve drought resistance, synthesis of the enzyme carbohydrazase, without which full synthesis of growth substances (auxins and cytokinins) is impossible, increase plant resistance to fungal pathogens and increase the content of spare nutrient substances in the yield thus improving its quality.

The participation of zinc in the synthesis of respiratory enzymes increases the resistance of plants to stress.

## DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Sunflower	2 - 5 pairs of leaves	1,0 – 2,0
	6 - 8 pairs of leaves	1,0 – 2,0
Pea, soybean	2 - 3 true leaves	1,0 – 2,0
	Budding	1,0 – 2,0
Corn	3 - 5 leaves	1,0 – 2,0
	6 - 8 leaves	1,0 – 2,0
Tomatoes, paprika	Beginning of fruit formation	1,5 – 3,0
Grapes	Begining of flowering	1,0 – 2,0
Fruits and berries	Beginning of fruit formation	1,0 – 2,0

- ✓ The fertilizer includes an effective combination of elements which are typical antagonists in soil nutrition, which are quickly absorbed through the leaves
- ✓ It allows to optimize the nutrition of crops, which are especially sensitive to phosphorus and zinc deficiency, in the early stages of organogenesis
- ✓ Phosphorus in the form of phosphite stimulates the synthesis in the plant of phytoalexins which are natural immunity protectors, and zinc, which exhibits fungicidal properties, enhances this effect
- ✓ Zinc in the form of 100% EDTA chelate provides more economical use of moisture by the plant

# GROS Phosphito-NP

Element		%
Nitrogen	N-NH <sub>2</sub>	30,0
Phosphorus (phosphite)	P <sub>2</sub> O <sub>5</sub>	60,0
Density - 1,43		
pH - 5,0		



Unique liquid fertilizer with the highest concentration of phosphorus in the form of phosphite and nitrogen. The phosphite form promotes rapid entry of phosphorus into the plant and its movement in the plant itself. It provides activation of root system growth and increases plant immunity to adverse weather conditions and pathogens of fungal diseases of the class Oomycetes. High nitrogen content in easily available form enhances plant growth. The fertilizer is recommended for use at the early stages of growth.

## DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Winter and spring cereals	From 2-4 leaves till tube exit	1,5 – 2,0
Corn	6 - 8 leaves - tasseling	2,0
Winter and spring oilseed rape	4 leaves - rosette	1,5 – 2,0
Legumes	2 - 3 true leaves	1,0 – 2,0
Sunflower	4 - 8 pairs of leaves, "star" phase	2,0
Sugar beets	Row closure	2,0
Cabbage	After rooting of seedlings	2,0
Potatoes	Stem formation	1,5 – 2,0



# GROS Phosphito-LNPK

Element		%
Nitrogen	N-NH <sub>2</sub>	20,0
Phosphorus (phosphite)	P <sub>2</sub> O <sub>5</sub>	20,0
Potassium	K <sub>2</sub> O	15,0
Amino acids	L-α	2,0
Density - 1,28		
pH - 6,5		

Liquid complex fertilizer containing macronutrients and amino acids. All phosphorus in the fertilizer is in the form of phosphite. Provides strengthening of growth processes and immunity of plants.

The presence of amino acids in the fertilizer helps to overcome the stress of plants caused by natural factors or pesticides. Phosphorus in the form of phosphite strengthens the protective mechanisms of plants, which increases their resistance to fungal pathogens. Potassium and nitrogen stimulate growth processes. The fertilizer is developed for foliar nutrition of crops during the period of intensive growth.

## DOSE RATE AND TIME OF APPLICATION

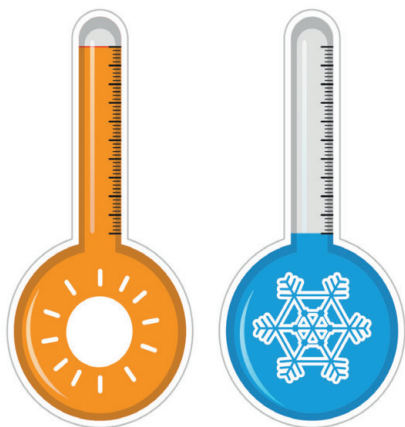
Crop	Time of application	Dose rate, l/ha
Winter and spring cereals	From 2 - 4 leaves till tube exit	1,5 – 3,0
Corn	6 - 8 leaves	2,0 – 3,0
Winter and spring oilseed rape	4 leaves - rosette	1,5 – 2,5
Legumes	2 - 3 true leaves	1,0 – 2,0
Sunflower	4 - 8 pairs of leaves	2,0 – 3,0
Sugar beets	Row closure	2,0 – 3,0
Vegetables	Active vegetative mass growth	1,0 – 3,0

\*The fertilizer is delivered by prior order. For detailed information, please contact the distributors or regional representatives of ECOORGANIC LLC





# **ANTISTRESS FERTILIZERS**



# ANTISTRESS FERTILIZERS

## ADVANTAGES OF USING ANTISTRESS FERTILIZERS

In agriculture, plant stress is a fairly common phenomenon. The causes of stress can be both biotic and abiotic factors. The consequence of the influence of stress factors is suspension of plant growth, reduced efficiency of photosynthesis process, reduction or complete cessation of the absorption of mineral nutrients. All this leads to significant losses of yield and its quality.

The use of free amino acids as an anti-stress agent has been a well-known and extremely effective practice for a long time. Assimilation of these substances by a plant gives additional energy, leads to restoration of biochemical processes in cells and, thus, removes crops from stress. In addition to amino acids, other biologically active substances (phosphites, phytohormones, some chelated microelements, etc.) have an anti-stress effect - both when applied alone and in combination with amino acids.

Back in 2017, **ECOORGANIC** launched a line of special fertilizers containing amino acids. Each of these fertilizers to some extent acts as an anti-stress agent. The effectiveness of these compositions has been confirmed in different growing conditions in all soil and climatic zones of the country.

This chapter of the catalogue includes the most effective anti-stress compositions that can be used under various stress conditions. We would like to pay special attention to **GROS Amino-Zn**: the combination of zinc in the form of 100% EDTA chelate with L- $\alpha$ -amino acids not only helps plants of different crops to overcome stress, but also stimulates plant growth and significantly increases yields.

### ECOORGANIC ANTISTRESS FERTILIZERS

Fertilizer	Type of stress				
	High temperatures	Drought	Low temperatures	Phytotox	Other
ECOLINE Phosphite ( <i>K-Amino</i> )	+	+	++	+++	++
ECOLINE Universal Growth ( <i>Amino</i> )	+	+	+++	++	++
GROS Amino-Zn	+++	+++	+	++	++
GROS Health	++	+	++	++	++

# ECOLINE

## Phosphite (K-Amino)

Element		%
Nitrogen	N-NH <sub>2</sub>	4,0
Phosphorus (phosphite)	P <sub>2</sub> O <sub>5</sub>	25,0
Potassium	K <sub>2</sub> O	17,0
Boron	B	0,7
Amino acids	L-α	7,0
Density - 1,3		
pH - 6,0		



ANTISTRESS

Innovative fertilizer for foliar nutrition of crops with fungicide effect and antistress qualities. Free L-α-amino acids of plant origin can be easily taken up, participating in cell biochemical cycle, and economize plants energy, which enables their quick recovery after the stress condition.

### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Winter cereals	Autumn tillering	1,0 – 2,0
	Spring tillering	1,0 – 2,0
	Tube exit	1,0 – 2,0
Spring cereals	Tillering	1,0 – 1,5
	Ear formation	1,0 – 2,0
Sunflower	3 - 5, 6 - 8 pairs of leaves, "star" phase	1,0 – 2,0
Peas, soybeans	2 - 3 true leaves	1,0 – 2,0
Corn	3 - 5 leaves	1,0 – 2,0
	6 - 9 leaves	1,0 – 2,0
Potatoes	Budding - beginning of flowering	1,0 – 2,0
Tomatoes, paprika	Beginning of fruit formation	1,5 – 3,0
Grapes	Before flowering	1,0 – 2,0
Fruits and berries	Beginning of fruit formation	1,0 – 2,0
Sugar beets	2 - 4 pairs of leaves	1,0 – 2,0
	30 - 40 days before harvesting	1,0 – 2,0

- ✓ The only product of this class containing free L-α-amino acids of plant origin in the optimal concentration to overcome stress conditions
- ✓ Stimulates the synthesis of phytoalexins in a plant, which are natural immunity protectors
- ✓ Stimulates the demonstration of plant recovery effect after stress influence (drought, ground frost, pesticides application, etc.)
- ✓ Demonstrates fungicide effect against a wide range of pathogens – like mildew, rust of rye, foot rot, fusarium, dry rot, false mildew, mildew and others



# ECOLINE

## Universal Growth (Amino)

Element		%
Nitrogen	N-NH <sub>2</sub>	9,0
Potassium	K <sub>2</sub> O	4,0
Magnesium	MgO	1,5
Ferum	Fe	0,2
Manganese	Mn	0,2
Boron	B	0,2
Zinc	Zn	0,4
Copper	Cu	0,1
Molybdenum	Mo	0,05
Amino acids	L-α	7,5
Density - 1,2		
pH - 6,5		

Special fertilizer for foliar nutrition with anti-stress properties. Active ingredients: easily available macro- and micronutrients, as well as free L-α-amino acids of plant origin, which can be quickly uptaken and included into the biochemical cycle in cells.

### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Winter cereals	Tillering (autumn, spring), tube exit	0,5 – 1,0
Barley	Tillering	0,5 – 1,5
Sunflower	6 - 8 pairs of leaves	1,0 – 2,0
Peas, soybeans	2 - 3 true leaves	1,0 – 1,5
Corn	4 - 6 leaves	1,0 – 2,0
Potatoes	Stem formation - beginning of flowering	1,0 – 2,0
Cabbage	During vegetation	2,0 – 4,0
Cucumbers	During vegetation	2,0 – 4,0
Tomatoes, paprika	After seedlings planting till the beginning of fruit formation	1,5 – 3,0
Fruits, vegetables	Before flowering, during flowering	1,0 – 1,5

- ✓ Balanced mixture of macro- and micro-nutrients which are necessary for the period of crop biomass growth
- ✓ Mg, Zn, Mn, Fe, and Cu in the fertilizer are in the form of 100% EDTA chelate
- ✓ Contains L-α-amino acids of plant origin
- ✓ Quickly absorbed by plants, provides rapid stress overcome
- ✓ Increases the concentration of cell sap, thereby improving the resistance of plants to low temperatures

# GROS Amino-Zn

Element		%
Nitrogen	N-NH <sub>2</sub>	2,5
Zinc (chelate EDTA)	Zn	2,0
Amino acids	L-α	10,0
Density - 1,15		
pH - 6,5		



☀️ ANTISTRESS

The fertilizer is developed for foliar nutrition of the crops which are sensitive to zinc deficiency. Zinc is actively involved in redox processes, in the biosynthesis of growth stimulants, it activates the synthesis of enzymes. The combination with amino acids improves the absorption of zinc by plants and eliminates stress.

## DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Corn	4 - 6 leaves	0,5 – 1,0
Millet, sorghum	Beginning of tillering	0,5 – 1,0
Legumes	Before flowering	1,0
Sunflower	6 - 8 pairs of leaves	1,0
Winter cereals	Tillering - tube exit	0,5 – 1,0
Fruits	"Hazelnut" fruit size	1,0
Vegetables	Beginning of fruit formation	1,0

- ✓ Helps to overcome stress caused by high temperatures (as well as drought, low temperatures, etc.)
- ✓ Stimulates plant growth
- ✓ Increases plant resistance to pathogens
- ✓ Significantly increases yield



## GROS Health

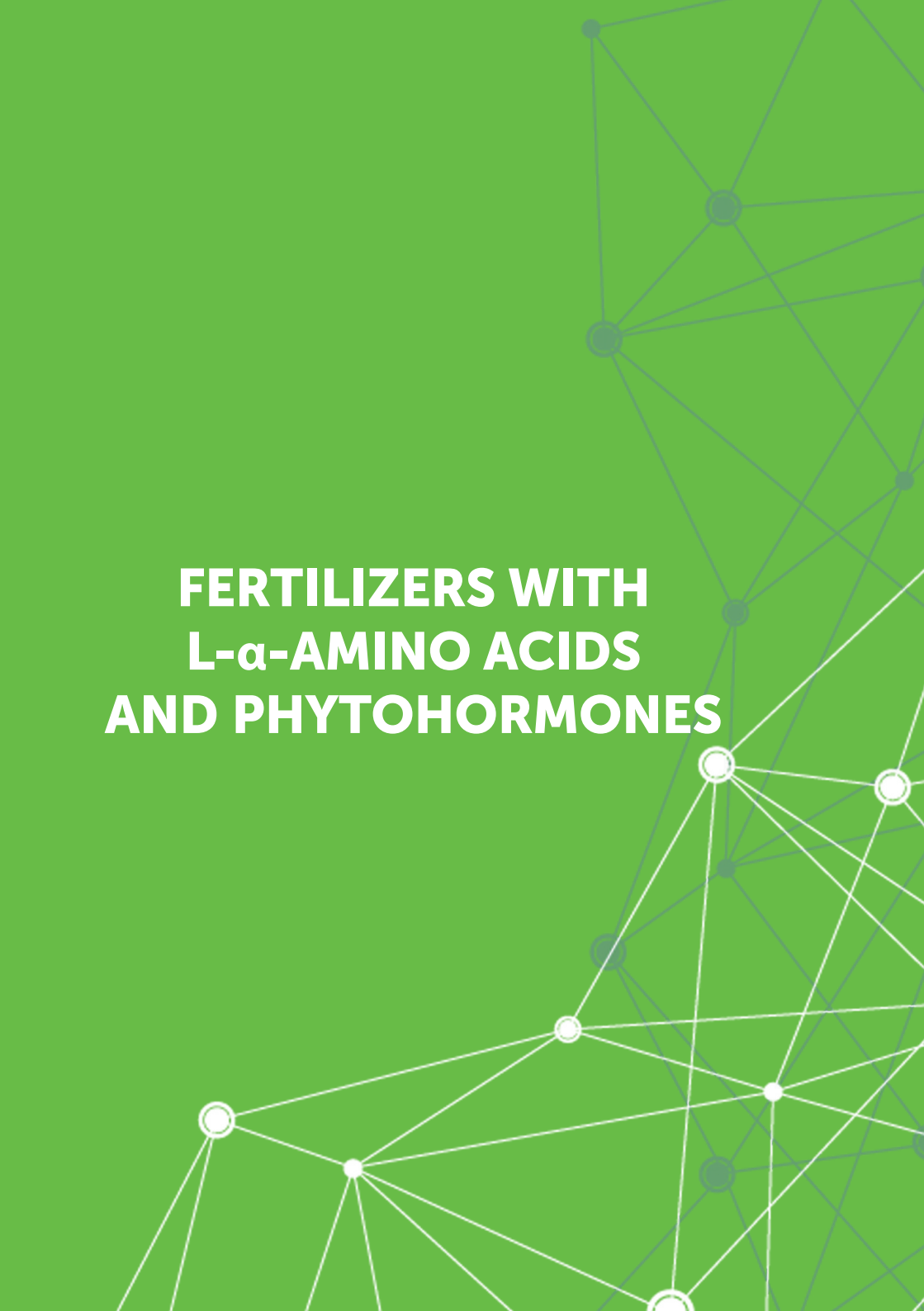
Element		%
Nitrogen	N-NH <sub>2</sub>	2,7
Amino acids	L-α	12,0
Density - 1,1		
pH - 6,0		

Liquid anti-stress fertilizer. High content of amino acids activates biochemical processes in plants, increases immunity and resistance of plants to adverse weather conditions and the negative impact of crop protection products.

### DOSE RATE AND TIME OF APPLICATION

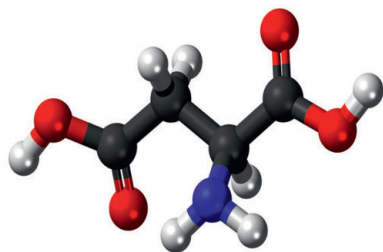
Crop	Time of application	Dose rate, l/ha
Winter cereals	Tillering, flag leaf appearance	1,0 – 1,5
Winter and spring oilseed rape	From 4 leaves till stem formation	1,0 – 1,5
Legumes	Pods formation	1,0
Sunflower	4 - 8 pairs of leaves, "star" phase	1,0 – 2,0
Corn	4 - 8 leaves - tasseling	1,0 – 2,0
Sugar beets	From 2 – 4 leaves till row closure	1,0 – 2,0

- ✓ Multipurpose anti-stress fertilizer
- ✓ Quick uptake by plants
- ✓ Suitable for different tank mixes



# **FERTILIZERS WITH L- $\alpha$ -AMINO ACIDS AND PHYTOHORMONES**

## FERTILIZERS WITH L- $\alpha$ -AMINO ACIDS AND PHYTOHORMONES



**L- $\alpha$ -amino acids** are the most beneficial for the plant because they are synthesized by the plant itself. During periods of intense growth or when exposed to negative factors, the plant accumulates a significant amount of free (i.e. not bound into peptides or proteins) amino acids that act as a defense mechanism. The value of such accumulation is that during these periods the plant spends less energy for protein synthesis. If free amino acids enter the plant from the outside, we have a double effect: the additional volume of amino acids allows to overcome more successfully the period of intensive growth or stressful situations, while the plant does not stop the basic processes of protein synthesis.

### **Role of amino acids in a plant:**

- \* Regulation of transpiration and osmotic processes.
- \* Participation in most of exchange processes.
- \* Indispensable for pollination and fruit formation.
- \* Due to amino acids, nitrogen metabolism goes with minimal energy spending.
- \* Increase of endogenous plant protection.
- \* Increase of resistance to stress situations.
- \* There are two types of optical isomers of L- and D-series. All amino acids that are part of plant proteins belong to the L- isomers.

**Phytohormones** are organic compounds of various chemical nature, produced by specialized tissues of higher plants. At low concentrations they exert a regulatory influence on the processes of ontogenesis, regulate plant growth and development. They are an important component of the systems of regulation of the ontogeny of higher plants. There are several groups of phytohormones according to the specificity of their effect on plants. For the growth and development of plants the most important are phytohormones from the following groups: auxins, gibberellins, cytokinins.

They are concentrated mainly in actively growing tissues in the apex areas of the roots and stems. Phytohormones have positive influence on growth processes when applied foliarly, which determined the expediency of their use in crop growing technologies. Phytohormones from auxin and cytokinin groups are the most studied and common in use. The presence of auxins in combination with cytokinins enhances cell division. The transition of cells to mitosis and cytokinesis depends, as a rule, also on the presence of cytokinin, but high concentrations of auxin are capable of causing mitosis in somatic plant cells even without cytokinin.

In 2017, **ECOORGANIC** launched a new premium line of fertilizers containing L- $\alpha$ -amino acids and phytohormones under the name **GROS**. Successfully selected compositions and forms of active ingredients enhance the growth energy of seedlings and young plants, intensify cell division of meristem tissues.



# GROS

## Rootgrowth

Element		%
Nitrogen	N-NH <sub>2</sub>	3,0
Phosphorus (phosphite)	P <sub>2</sub> O <sub>5</sub>	5,0
Potassium	K <sub>2</sub> O	3,0
Amino acids	L-α	3,0
Phytohormones		22,0 ppm
auxins		20,0 ppm
cytokinins		2,0 ppm
Density - 1,09		
pH - 6,0		



Liquid fertilizer which stimulates growth of the root system of plants. Phosphorus in the form of phosphite and phytohormones provide active growth of the root system. It is recommended for pre-sowing seed treatment, treatment of seedling roots of vegetable and ornamental crops, trees and shrubs before planting, as well as treatment of planted seedlings to improve rooting.

### DOSE RATE AND TIME OF APPLICATION

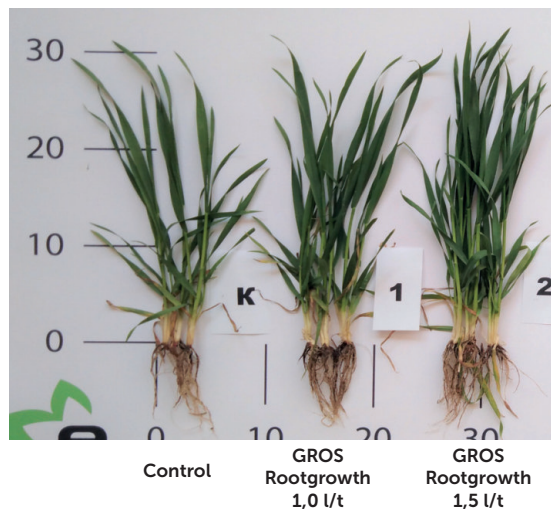
Crop	Time of application	Dose rate, l/ha
Winter (spring) cereals, corn, sunflower	Pre-sowing seed treatment	1,0 – 1,5 l/t
Potatoes	Pre-sowing seed treatment	0,5 – 2,0 l/t
Vegetables	One week after planting the seedlings, 2-4 true leaves	1,0 – 1,5
Roots treatment before planting		Concentration 0,03%

Video "Germination of wheat seeds treated with GROS Rootgrowth"



# INFLUENCE OF GROS ROOTGROWTH ON THE DEVELOPMENT OF WINTER WHEAT ROOT SYSTEM

Research field of Institute of Plant Physiology and Genetics,  
Hlevakha, Kyiv region 2019\*



## Advantages of GROS Rootgrowth:



**Stimulation of root system development due to the selected complex of phytohormones**



**Optimization of plant nutrition during and after germination due to the synergistic action of phosphites and L- $\alpha$ -amino acids**



**Fungicide activity of phosphorus in the form of phosphite**



**Improved winter hardiness and increased yield**



**Possibility of use on various crops both for treatment of seeds, root system, or foliar**

\*You can find the results of field and demonstration trials of 2017, 2018, 2019, 2020 in the corresponding brochures "Results of ECOORGANIC fertilizers application" which can be downloaded on the website [www.ecoorganic.ua](http://www.ecoorganic.ua)

# GROS Quitselium

Element		%
Iron	Fe	2,4
Manganese	Mn	0,6
Zinc	Zn	0,6
Copper	Cu	0,6
Boron	B	0,24
Molybdenum	Mo	0,02
Amino acids	L-α	2,0
Phytohormones		60,0 ppm
cytokinins		30,0 ppm
gibberellins		15,0 ppm
auxins		15,0 ppm
Density - 1,16		
pH - 7,5		



Liquid fertilizer, growth stimulator developed for foliar nutrition of different crops. It contains trace elements, amino acids and phytohormones. The fertilizer is designed to stimulate flowering and pollination processes, increase the number of fruits and their size. It is used on field crops, vegetables, gardens and ornamentals.

## DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Sunflower	"Star" phase	0,5 – 1,0
Oilseed rape	Budding	1,0 – 1,5
Legumes	Budding	0,5 – 1,0
Vegetables	Before flowering - ripening	1,0 – 1,5
Fruits and berries	Before flowering - ripening	1,0 – 2,0
Grapes	Before flowering - ripening	0,1% solution
Ornamentals	Before flowering	1,5 – 2,0

- ✓ Stimulates the processes of flowering and pollination
- ✓ Prevents ovary shedding
- ✓ Increases the number of fruits and their size

# GROS Amino-Mg



Element		%
Nitrogen	N-NH <sub>2</sub>	9,0
Magnesium	MgO	12,0
Amino acids	L-α	8,0
Density - 1,3		
pH - 6,0		

Liquid fertilizer containing magnesium and L-α-amino acids. Magnesium is involved in many processes in the plant, activates more than 300 enzymes due to specific binding to complexes, has a positive effect on the transfer and absorption of phosphorus in plants. The combination of magnesium with amino acids enhances photosynthesis and the outflow of sugars from the green parts of the plant to the roots and the commodity part of the crop.

## DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Cereals	Tillering, flag leaf appearance	1,0
Winter oilseed rape	4 - 6 leaves - rosette	1,0 – 1,5
Sugar beets	One month before harvesting	1,5 – 2,0
Legumes	2 – 3 true leaves	1,0 – 2,0
Sunflower	4 – 8 pairs of leaves, "star" phase	2,0
Corn	4 leaves - tasseling	1,5 – 2,0
Vegetables	Rooting of seedlings – beginning of ripening	1,0 – 2,0

# GROS Silicon\*

Element		%
Potassium	K <sub>2</sub> O	12,0
Silicon	SiO <sub>2</sub>	24,0
Amino acids	L-α	2,0
Density - 1,26		
pH - 10,5		



Liquid organic and mineral fertilizer with silicon, potassium and amino acids. Silicon is an auxiliary nutrient in plant nutrition. In a plant it binds into a silicate-galactose complex, thus it makes influence on metabolism, strengthens cell walls, normalizes the flow and distribution of manganese, eliminating its possible toxic effect.

## DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Cereals	Tillering – ear formation	1,5 – 2,0
Oilseed rape	Rosette - budding	1,5 – 2,0
Legumes	Budding – grain formation in the pods	1,5 – 2,0
Sunflower	6 – 8 pairs of leaves, “star” phase	1,5 – 2,0
Corn	6 – 8 leaves – tasseling	2,5 – 3,0
Vegetables	From seedlings rooting till the beginning of ripening	2,0 – 3,0
Fruits	After physiological ovary shedding till fruit ripening	1,5 – 2,0

\*The fertilizer is delivered by prior order. For detailed information, please contact the distributors or regional representatives of ECOORGANIC LLC



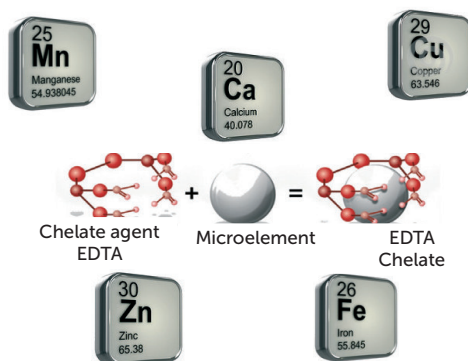


# **MONOCHELATES**





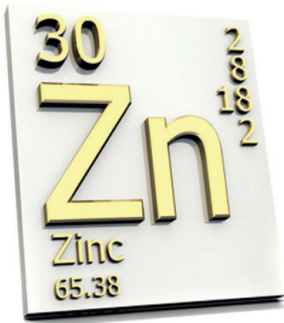
# MONOCHELATES



Microelement	MAX* concentration of microelements in EDTA chelates (g/l)	Concentration of microelements in ECOORGANIC fertilizers (g/l)
CaO	55	50
Cu	100,5	65
Mn	62,4	60
Zn	87,75	85
Fe	62,4	60
MgO	49	47

\* - Data from CRC Handbook of Chemistry and Physics – CRC Press

Monochelates are intended to eliminate manifestations of shortage of particular microelements in crops, especially those which are sensitive to their deficiency. Monochelates are fertilizers containing one trace element in high concentration. Fertilizers from ECOORGANIC LLC contain trace elements - metals in the highest possible concentration of chemical constants for EDTA chelates in liquid form. The most appropriate way to use mono-chelates is to perform a preliminary soil and leaf analysis of the crop to detect the level of mineral nutrients or to perform functional diagnostics on indicator leaves.



## ROLE OF ZINC IN PLANT MINERAL NUTRITION

**Zinc** is an important biogenic element which performs various functions in an organism: participates in redox processes, regulating oxidation of mediums and the transfer of electrons along a noctilucous respiratory chain, activates in a plant the synthesis of no less than 13 enzymes. The important role of zinc is to assimilate other nutrients including nitrogen by plants. The zinc ions exhibit fungicide properties which increase resistance of plants to diseases of fungal origin.

Zinc contributes to more economical use of water by plants, thus increasing their resistance to moisture deficiency. The rate of zinc uptake from the soil depends on soil acidity: on neutral and alkaline soils it is not high. On such soils and soils with high content of phosphorous with which ion antagonism is observed, zinc starvation can take place.

Zinc deficiency reduces sugar accumulation, increases organic acid content, interferes into protein synthesis, increases the content of non-protein nitrogen substances - amides and amino acids.

The sign of zinc deficiency is small (lanceolate) leaves. On corn such deficiency is demonstrated as interveinal leaf yellowing. On vegetable crops spots appear on top leaves which turn yellowish, with a bronze coloring. On tomatoes abnormally small chlorotic leaves are formed which resemble rosette of fruit trees.

# ECOLINE

## Zinc (Chelate)

Element		%
Nitrogen	N-NH <sub>2</sub>	3,6
Zinc	Zn	8,5
Density - 1,3		
pH - 7,0		



Highly concentrated chelate zinc microfertilizer, designed to eliminate the manifestation of zinc deficiency, for foliar nutrition of crops, especially demanding for zinc supply conditions (corn, soybeans, sorghum). It can be used in a tank mix with crop protection products. The fertilizer provides resistance to stresses and drought resistance of plants.

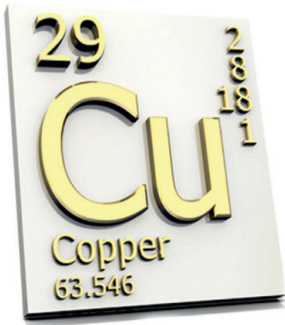
### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Corn	3 – 5 leaves	0,5 – 1,0
Millet, sorghum	Beginning of tillering	0,5 – 1,0
Legumes	3-5 true leaves	0,5 – 1,0
Sunflower	6 – 8 pairs of leaves	1,0
Winter cereals	Autumn tillering	0,3 – 0,5
Kernel fruits	After the first ovary shedding	0,5 – 1,0
Vegetables (tomatoes, paprika)	Beginning of fruit formation	0,5 – 1,5

- ✓ Contains zinc in the form of 100% EDTA chelate in the maximum possible concentration
- ✓ Provides zinc nutrition regulation during the critical stages of plant development
- ✓ Improves the use of soil moisture
- ✓ Improves stress resistance and drought hardiness of plants
- ✓ Can be combined with the majority of crop protection products

Approved for use in organic agriculture according to the Standard of Organic Production and Processing which is Equivalent of European Union Regulation No 834/2007 and No 889/2008 (Organic Standard Certificate No20-0529-05/01)





## ROLE OF COPPER IN PLANT MINERAL NUTRITION

Copper is a part of enzymes, it increases the intensity of respiration and photosynthesis, affects protein and hydrocarbon metabolism. The main value of copper is its participation in the synthesis of redox enzymes in plants. Copper is present in the active center of the metal-protein complex, acts as an activator of biochemical processes, promotes protein synthesis, affecting nitrogen metabolism in the plant. Copper stimulates the synthesis of carbohydrates, improves the supply of nitrogen and magnesium to plants, participates in auxin and nucleic acid metabolism and lignin biosynthesis.

Copper fertilizers are effective on such crops as sugar, fodder and table beets, turnips, carrots, peas, mustard, sunflower, flax and hemp. The use of copper fertilizers helps to increase the protein content in the grains of cereals and legumes, it increases the sugar content in roots and vitamin C in fruits.

### **Signs of copper deficiency**

Cereals are indicators of copper deficiency. Lack of copper in cereals is manifested in the form of pustules. In starving plants there is a whitening of the tips of young leaves and their twisting, followed by wilting and death. Malformation of ear development is observed.

In fruit crops, young shoots die off, the leaves show marginal chlorosis and necrosis, the transition of plants to the generative phase (flowering and fruiting) is essentially delayed, the leaves fall off, the tips of the shoots die off and bend downwards.

Copper starvation of plants is enhanced by the high content of heavy metals (Mn, Fe, Zn) in the soil solution due to ion antagonism.

# ECOLINE

## Copper (Chelate)

Element		%
Nitrogen	N-NH <sub>2</sub>	3,0
Copper	Cu	6,5
Sulphur	SO <sub>3</sub>	8,0
Density - 1,29		
pH - 7,0		



High concentrated chelate copper microfertilizer. It is developed to eliminate the manifestation of copper deficiency, and for foliar fertilization of crops which are demanding for copper supply (especially when grown on soils of light particle size distribution, drained peat soils).

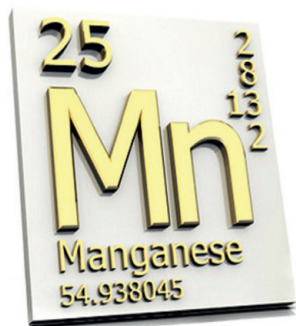
### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Winter cereals	Start of tube exit – ear formation	0,5 – 1,0
Spring cereals	Start of tube exit	0,5 – 1,0
Potatoes	Before flowering	1,0
Sugar beets	Row closure	1,0 – 1,5
Sunflower	6 – 8 pairs of leaves	1,0
Kernel fruits	Fruit formation	0,5 – 1,0
Stone fruits	Beginning of fruit formation	0,5 – 1,0
	After harvesting	2,0 – 2,5

- ✓ Contains copper in the form of 100% EDTA chelate in a very high concentration
- ✓ Provides copper nutrition regulation during the critical development stages of a plant
- ✓ Improves nitrogen uptake and protein synthesis
- ✓ Regulates flowering process
- ✓ Strengthens plant stress resistance and cold hardness
- ✓ Increases plant productivity
- ✓ Increases resistance of plants to diseases of fungal nature

Approved for use in organic agriculture according to the Standard of Organic Production and Processing which is Equivalent of European Union Regulation No 834/2007 and No 889/2008 (Organic Standard Certificate No20-0529-05/01)





## ROLE OF MANGANESE IN PLANT MINERAL NUTRITION

Manganese takes part in photosynthesis processes, in chlorophyll synthesis and activation, protein metabolism, C-vitamin (ascorbic acid) synthesis, facilitates sugar accumulation.

Manganese is extremely important in the mineral nutrition of winter crops in autumn and early spring, when the plants can not absorb ammonium forms of nitrogen. Adequate nutrition of cereal plants with manganese during this period protects plants from so-called "ammonia poisoning".

Most soils in Ukraine contain a sufficient amount of assimilated manganese, but its deficiency can be manifested on light (sandy) soils, where it is prone to leaching from the upper soil layers. Black soil and sod-carbonate soils with a neutral or alkaline reaction often suffer from manganese deficiency. Manganese deficiency can also occur after liming and during drought.

Signs of manganese deficiency in plants are different. In cereals, green spots and streaks appear on the leaves. In potatoes, the leaf surface becomes uneven - the veins remain at the bottom, and the interveinal space rises. In cucumber, the young leaves become light green, and on the edges they get yellowish. Later, the process covers the entire leaf blade, and the veins remain bright green. The leaves of table beets become dark red.

The highest effect from the use of manganese fertilizers is achieved on sugar beets, potatoes, vegetables, orchards.

# ECOLINE

## Manganese (Chelate)

Element		%
Nitrogen	N-NH <sub>2</sub>	3,0
Manganese	Mn	6,0
Density - 1,3		
pH - 7,0		



Highly concentrated manganese microfertilizer. It is used to eliminate the symptoms of manganese deficiency, as well as for foliar nutrition of the crops which are especially demanding for manganese.

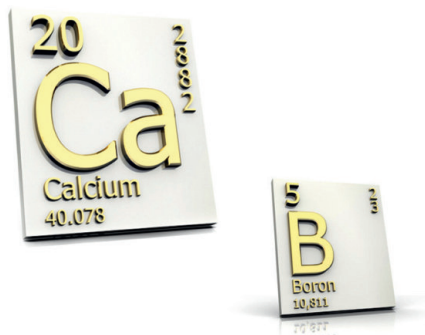
### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Winter cereals	Tillering (autumn and spring)	0,5 – 1,5
Winter oilseed rape	Stem formation (spring)	0,5 – 1,5
Spring oilseed rape	Stem formation	0,5 – 1,0
Soybeans	Budding	0,5 – 1,0
Sugar beets	Row closure	1,0 – 2,0
Corn	8 – 10 leaves	1,0 – 1,5
Potatoes	Beginning of budding	1,0 – 2,0
Vegetables	Beginning of fruit formation	1,5 – 2,0
Fruits	Beginning of fruit formation	1,5 – 2,0

- ✓ Contains manganese in the form of 100% EDTA chelate in the maximum possible concentration
- ✓ Provides regulation of manganese nutrition, especially during hot period, when its uptake from the soil by the plants is inhibited
- ✓ Increases plant productivity
- ✓ Improves yield quality

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## ROLE OF CALCIUM AND BORON COMPLEX IN PLANT MINERAL NUTRITION

Calcium takes part in water, carbohydrate and nitrogen metabolism in a plant, neutralizes organic acids activity, and regulates metabolism processes and water and physiological cell balance. Calcium is also necessary for a plant for nucleic acids synthesis. Photosynthesis and energy metabolism are also connected with calcium.

Supporting the structure of cell membranes and nuclei, calcium prevents premature aging and as a result, improves the possibility of storage and transportation of fruits.

Boron, performing a subordinate role, facilitates accumulation of sugars in the yield, thus improving its quality.

Signs of calcium deficit in vegetable crops are most noticeable on new leaves which become chlorotic (develop light-green spots). To the contrary, old leaves acquire a dark-green coloring and grow in size. In hot weather, calcium deficiency manifests itself in the form of a physiological disease of tomato apical rot - in the form of a spot of black rot on the fruit.

The same disease is manifested on paprika. Cracks on tomatoes near the stalk are also the evidence of calcium deficiency during fruit ripening.

In fruit trees, young leaves become smaller, twisted, some form pale blue spots, growth buds often die and fall off, young roots become brown. In some varieties of apple trees, the fruit is affected by bitter pitting and brown spotting of the skin. These manifestations are exacerbated in wet and cold weather, when the movement of calcium into the fruit is delayed.



# ECOLINE Calcium-Boron (Chelates)

Element		%
Nitrogen	N-NH <sub>2</sub>	2,5
Calcium	CaO	5,0
Boron	B	0,8
Density - 1,2		
pH - 7,5		



Combined concentrated fertilizer recommended to eliminate the manifestation of calcium and boron deficiency by foliar nutrition of crops, which are especially demanding to the conditions of calcium and boron supply.

## DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Fruits	From the beginning of fruit formation till the beginning of ripening	3,0 – 4,0
Vegetables	From the beginning of fruit formation till the beginning of ripening	3,0 – 4,0
Vegetables	From the beginning of fruit formation till the beginning of ripening	2,0 – 3,0

- ✓ Contains calcium in the form of 100% EDTA chelate in the maximum possible concentration
- ✓ Provides improvement of fruits transportability
- ✓ Prevents the manifestation of physiological diseases: bitter pitting in apple trees, cracking of the top of the fruit in tomatoes, cracking of cherries and wild cherries
- ✓ Improves yield quality
- ✓ Improves the formation of fruit buds for the next year's harvest

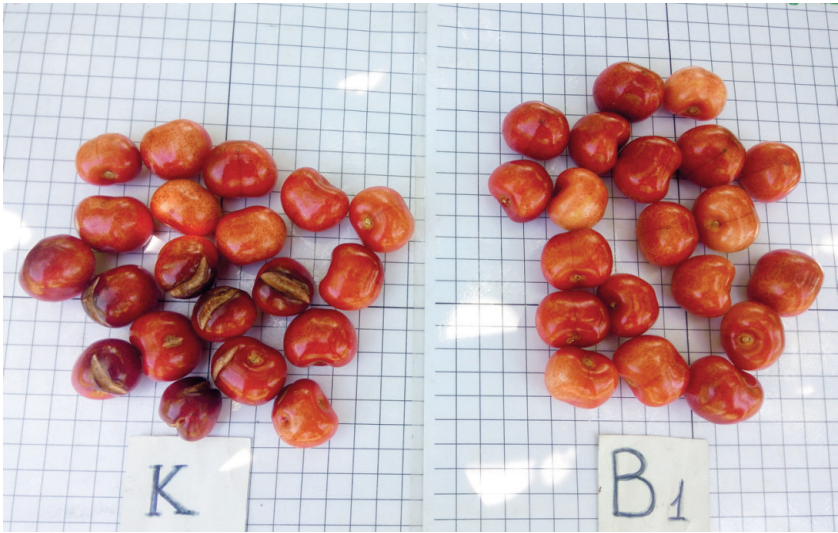
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**INFLUENCE OF ECOORGANIC NUTRITION SYSTEM, IN PARTICULAR  
ECOLINE Calcium-Boron (Chelates), ON THE FORMATION AND QUALITY  
OF CHERRIES**

**Farm DZHEPPAROVA L.S.  
village Rivne, Zaporizka oblast 2019 \***

Variants	Stage of development		
	Autumn (preventively)	After flowering	Fruit formation
Check	No treatment	No treatment	No treatment
Variant 1	ECOLINE Phosphite (K) 3,0 l/ha	ECOLINE Phosphite (K-Zn) 2,5 l/ha + ECOLINE Boron (Premium) 2,5 l/ha + ECOLINE Magnesium (Chelates) 2,0 l/ha	ECOLINE Calcium- Boron (Chelates) 2,0 l/ha



**Intermediate check 12.06.2019**

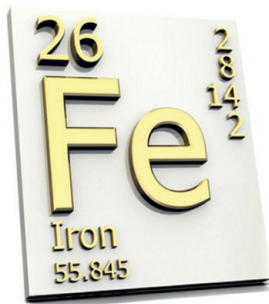
**Check:**

The cherries are different size, smaller  
than at the treated plot,  
up to 20% cracked

**Variant 1:**

The cherries are bigger than at the check  
plot, homogeneous  
size, without cracking

**One of the most important elements of stone fruits growing, sweet cherries in particular, is keeping the fruit skin undamaged under the conditions of high precipitation level during ripening period. The components of ECOLINE Calcium-Boron (Chelate) essentially increase fruit resistance to cracking and provide excellent visual and taste characteristics of the cherries.**



## ROLE OF IRON IN PLANT MINERAL NUTRITION

Chemical analysis of plants shows that their iron content is tens and hundreds of times higher than other trace elements, so among scientists there is a discussion to which category to attribute this element of mineral nutrition - to macro-or micronutrients. Iron is involved in metabolic processes, redox reactions, affects the synthesis of chlorophyll. In plants, the element enters in the form of  $\text{Fe}^{2+}$  and  $\text{Fe}^{3+}$  ions and is concentrated (approximately 80%) in chloroplast proteins, i.e. in the leaves.

The role of iron in the transfer of electrons in the process of plant respiration is extremely important. Iron is part of many enzymes important for plant life.

At different latitudes of our country soils are characterized by uneven content of iron available to plants. The amount of iron in soil rocks depends on their physical and chemical characteristics. On soils with a close level of groundwater and acid reaction, iron compounds are in the most accessible forms for plants. On soils with a strongly acid reaction, excessively moist and gleyed, manifestations of toxic effects of iron compounds on plants are possible, when it is represented by acidic forms of  $\text{FeO}$ ,  $\text{Fe}_2\text{O}_3$ . As the reaction of the soil solution to the alkaline side increases, iron becomes less accessible to plants. The availability of iron for plant root systems also depends on soil temperature and humidity. Iron deficiency is most often observed in the steppe zone on black soil, carbonate and chestnut soils.

Signs of iron deficiency: plant growth is delayed, young leaves become chlorotic. In acute deficiency, the leaves turn white and only the leaf veins at the edges remain green. In the plant, iron is practically not recycled. Iron deficiency most often affects fruit crops, especially when grown on carbonate or limed soils. In this case, the so-called calcareous chlorosis is observed. Trees with a strong manifestation of chlorosis bloom poorly, the yield of fruits and their quality decreases sharply.



## ECOLINE Iron (Chelate)\*

Element		%
Nitrogen	N-NH <sub>2</sub>	3,0
Iron	Fe	6,0
Density - 1,2		
pH - 6,5		

High concentrated chelate iron microfertilizer produced to remove the demonstrations of iron deficit, and for foliar nutrition of crops, especially demanding for iron provision.

### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Corn	8 – 12 leaves	0,5 – 1,0
Sunflower	6 – 8 pairs of leaves	1,0 – 1,5
Sugar beets	Row closure	1,0 – 2,0
Soybeans	Beans formation	0,5 – 1,0
Winter oilseed rape	Stem formation	1,0 – 1,5
Fruits and berries	Fruit formation	0,5 – 1,5
Vegetables	Fruit formation	0,5 – 1,0
Grapes	Beginning of fruit formation	1,5 – 2,0

- ✓ Contains iron in the form of 100% EDTA chelate in the maximum possible concentration
- ✓ Provides regulation of iron nutrition at critical stages of plant development
- ✓ Improves photosynthesis process
- ✓ Removes chlorosis demonstrations
- ✓ Increases plant productivity
- ✓ Improves harvest quality

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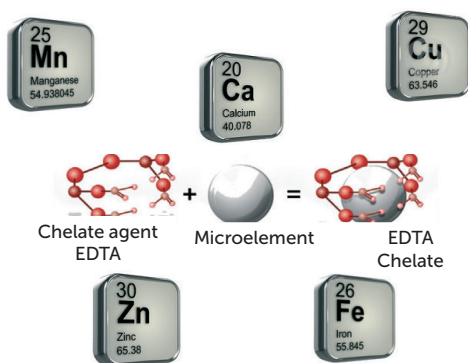


\*The fertilizer is delivered by prior order. For detailed information, please contact the distributors or regional representatives of ECOORGANIC LLC

# COMPLEX CHELATES

An abstract geometric pattern consisting of interconnected lines and dots, resembling a molecular structure or a network diagram. The pattern is composed of various sized dots (nodes) connected by thin lines (edges). Some dots are solid dark green, while others are white with a dark green outline. The lines are thin and dark green. The overall shape is irregular and occupies the right side of the image, extending from the top right towards the bottom right.

# COMPLEX CHELATES



**Complex chelates** are a group of products developed to provide for mineral nutrition of particular crops.

These fertilizers are characterized by a specially selected and balanced in composition and content complex of macro- and microelements, which are necessary for a certain group of crops to optimize nutrition in critical periods of development, improve crop quality.

# ECOLINE

## Molybdenum (Complex)

Element		%
Nitrogen	N-NH <sub>2</sub>	4,0
Phosphorus	P <sub>2</sub> O <sub>5</sub>	25,0
Molybdenum	Mo	7,0
Density - 1,3		
pH - 5,5		



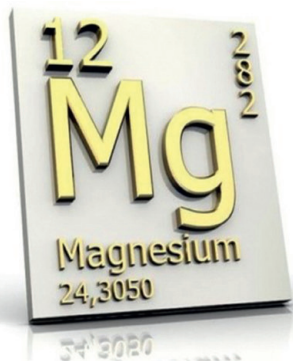
Molybdenum is part of nitrate and nitrite reductase enzymes. It participates in the processes of nitrogen absorption, protein and phosphorus metabolism. Leguminous crops are particularly sensitive to the conditions of molybdenum nutrition, which is associated with its participation in the processes of nitrogen fixation of molecular nitrogen by Rhizobium bacteria. It is important for the quality of pome and stone fruits.

Due to the lack of molybdenum in plants, the synthesis of ascorbic acid is slowed, which results in the reduction of chlorophyll regeneration and the intensity of photosynthesis.

### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Soybeans, peas, sainfoin, chickpeas, seed plants of leguminous grasses	3 - 5 leaves	0,5 – 1,0
Vegetables	Fruit formation	0,5 – 1,0
Fruits	Fruit formation	1,0 – 1,5

- ✓ Contains molybdenum in the form of organic and mineral complex with phosphorus
- ✓ The combination of molybdenum with phosphorus improves their absorption as both elements are closely linked in biochemical processes in plants
- ✓ The product provides nutrition regulation in the plants sensitive to the conditions of molybdenum nutrition. It is especially effective on acidic and organogenic soils
- ✓ It provides increased plant productivity and improved yield quality
- ✓ It promotes the conversion of oxidized forms of nitrogen into a reduced form thereby reducing the risk of nitrate and nitrite accumulation in fruits and vegetables



## THE ROLE OF MAGNESIUM IN MINERAL NUTRITION OF PLANTS

In plants, magnesium is responsible for the formation of chlorophyll in the leaves, significantly affects the productivity of photosynthesis, synthesis of carbohydrates and their transport from leaves to roots, resulting in the formation of a strong root system, increasing the concentration of sugars at the point of growth. It also activates the conversion of phosphorus from mineral compounds into organic ones. More than 300 enzymes are activated by magnesium due to its specific binding to complexes.

Magnesium deficiency leads to reduced productivity of the photosynthesis process, and, consequently, reduced yields. Magnesium deficiency is especially negative in crops that form a large area of the leaf surface: cereals, corn, sunflower, sugar beets, winter oilseed rape. The soils of our country are unevenly supplied with magnesium available to plants. In Polissya soils, eroded soils in all the regions, and in the conditions of the washing type of water regime there is a low magnesium content, as it is a very mobile element and can be washed with rain and melt water out of the root layer of the soil. In early spring, magnesium deficiency is manifested in fields with complex microrelief in the form of lightening of leaves on winter crops.

Signs of magnesium deficiency are especially common on light soils. These include interveinal chlorosis of old leaves, which harden, become brittle, dry up prematurely and fall off. Signs of starvation are first visible at the base of the shoot of the current year, then spread to the top of the shoot, where there are a few thin dark green leaves.

In cherries and some apple varieties, interveinal chlorosis begins in the middle of the leaf. The leaves between the veins become purple-red. In cherries and pears, the spots on the leaves are often almost black, the fruits ripen slowly and are usually not suitable for storage.



# ECOLINE

## Magnesium (Chelates)

Element		%
Nitrogen	N-NH <sub>2</sub>	3,5
Magnesium	MgO	4,7
Sulfur	SO <sub>3</sub>	4,0
Iron	Fe	0,46
Manganese	Mn	0,23
Boron	B	0,23
Zinc	Zn	0,35
Copper	Cu	0,12
Density - 1,2		
pH - 7,5		



Concentrated chelate fertilizer, developed for elimination of magnesium deficiency and for foliar nutrition of crops which are especially demanding for magnesium supply.

### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Cereals	Tillering – tube exit	1,0 – 4,0
Corn	6 – 8 leaves	1,5 – 2,5
Sugar beets	Row closure	1,5 – 2,5
Vegetables	During active growth	1,5 – 3,0
Potatoes	Stem formation	1,0 – 2,0
Winter and spring oilseed rape	Budding	1,5 – 2,0
Melons	4 - 6 true leaves	1,0 – 1,5
Fruits	Beginning of fruit formation	2,0 – 3,0

- ✓ Contains magnesium and other minerals in the form of 100% EDTA chelate
- ✓ Improves root system activity
- ✓ Provides increased concentration of sugars in the growing point
- ✓ Activates conversion and absorption of phosphorus
- ✓ Enhances stress and cold resistance of plants



## MINERAL NUTRITION OF CEREALS

According to biological features, cereals react most strongly to the conditions of nitrogen nutrition and the elements that promote the full absorption of nitrogen.

An important role in the mineral nutrition of cereals belongs to other elements, in particular potassium. During the autumn growing season it promotes the accumulation of sugars for better overwintering, while in spring and summer it provides cell water and supports turgor, and participates in the synthesis of one of starch. Magnesium enhances the process of photosynthesis. Sulfur is involved in protein synthesis and promotes more complete absorption of nitrogen.

ECOLINE Cereal (*Chelates*) is developed to provide for biological needs of cereals. The ratio of nutrients and their content in the fertilizer is the result of many years of research on the mineral nutrition of these crops.

This microfertilizer is recommended for nutrition of plants in the most critical periods of development:

- phase of two-three leaves, when plants, using nutrients from the seeds, switch to root nutrition. The root system of plants in this period is still underdeveloped, and the weather conditions of autumn do not promote the active assimilation of mineral nutrients;
- in the tillering phase after the spring restoration of vegetation - plants grow intensively, photosynthetic activity increases, the main elements of productivity are formed. During this period, plants need enhanced nitrogen nutrition, as well as fertilization with magnesium, sulfur, copper and zinc;
- in the earing phase and the beginning of grain formation, when the grains and their quality indicators are formed (protein, glute). During this period plants need intensive nutrition with macro- and micronutrients.

# ECOLINE

## Cereal (Chelates)

Element		%
Nitrogen	N-NH <sub>2</sub>	19,5
Potassium	K <sub>2</sub> O	6,0
Magnesium	MgO	3,5
Sulfur	SO <sub>3</sub>	5,2
Iron	Fe	0,5
Manganese	Mn	1,7
Boron	B	0,15
Zinc	Zn	0,4
Copper	Cu	1,0
Density - 1,3		
pH - 6,5		



Complex concentrated microfertilizer for foliar nutrition of cereals: wheat, rye, triticale, oats, barley.

### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Winter cereals	Seed treatment	0,5 – 1,0 l/t
	Beginning of tube exit	1,5 – 2,0
	Ear formation	1,0 – 1,5
	Beginning of grains formation	2,0
Spring cereals	Seed treatment	0,5 – 1,0 l/t
	Tube exit – ear formation	1,0 – 2,0

- ✓ Contains a set of macro-and micro-nutrients necessary for cereals nutrition in the critical periods of development.
- ✓ Mg, Zn, Mn, Fe, and Cu are in the form of 100% EDTA chelate
- ✓ Provides normal growth and development of the crop for the realization of its genetic potential
- ✓ Increases plant resistance to stress
- ✓ Improves quality of grain



## MINERAL NUTRITION OF LEGUMES

The leguminous crops contain much more protein than cereals. Another important feature of this group of crops is their ability of symbiosis with nitrifying bacteria to bond nitrogen from the air. These features condition the high requirements of legumes to elements of mineral nutrition. Among macro-nutrients are phosphorus, potassium, magnesium and sulphur. The issue of applying nitrogen before planting and at the early stages is disputable. In cold rainy weather, legumes require nitrogen. The sign which indicates the need in nitrogen is a small amount of nodules on the roots and their grey color in the cut. Among the most required micro-elements are molybdenum, boron, zinc, manganese.

The most critical periods in mineral nutrition of legumes are: stage of 2 pairs of true leaves formation (nitrogen fixation), the budding stage (laying and development of flowers), early formation of beans (intensive accumulation of dry matter).

The phase of two true leaves is the beginning of the nitrogen-fixing activity of root nodule bacteria and it is critical in this period to ensure the plants with molybdenum. Molybdenum is involved in the conversion of oxidized forms of nitrogen, bound by nodule bacteria, into reduced to include them in the synthesis of nitrogen-containing compounds of the highest order: amines, amino acids, proteins.

Legumes are sensitive to lack of boron, which role in this case is to improve the pollination of flowers. Therefore, it is important to ensure the plants with available boron forms at the beginning of the budding phase. At the same time there is an intensive growth of vegetative mass, formation of the leaf surface, that requires an integrated providing of plants with major macro-and micronutrients. At the beginning of bean formation phase the best composition for foliar nutrition is ECOLINE Legumes (*Chelates*) which includes the optimal ratio of macro-and micronutrients.

# ECOLINE

## Legumes (*Chelates*)

Element		%
Nitrogen	N-NH <sub>2</sub>	11,0
Potassium	K <sub>2</sub> O	10,0
Magnesium	MgO	2,8
Sulfur	SO <sub>3</sub>	4,2
Iron	Fe	0,56
Manganese	Mn	0,84
Boron	B	0,32
Zinc	Zn	0,14
Copper	Cu	0,28
Molybdenum	Mo	0,05
Cobalt	Co	0,05
Density - 1,2		
pH - 6,5		



Complex concentrated fertilizer with macro and microelements (including molybdenum) for foliar nutrition of legumes during critical periods of their development.

### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Peas	Budding – beans formation	1,5 – 2,0
Soybeans	Budding – beans formation	1,5 – 2,0
Lupines	Budding – beans formation	1,0 – 1,5
Other legumes	Budding – beans formation	1,0 – 2,0

- ✓ Contains a set of macro-and micro-nutrients necessary for leguminous crops in critical periods of development
- ✓ Mg, Zn, Mn, Fe, and Cu are in the form of 100% EDTA chelate
- ✓ The fertilizer is especially effective on acid (pH < 5.5) soils, where growing beans necessitates the application of fertilizers containing molybdenum
- ✓ High content of zinc in the micro-fertilizer enhances the resistance of legumes to fungal and bacterial diseases and extreme temperatures
- ✓ Improves root system activity



## MINERAL NUTRITION OF CORN

Corn is one of the most productive crops of modern agriculture. To form the vegetative mass and grains it requires a large amount of nutrients. The crop requires a lot of nitrogen, phosphorus, potassium, magnesium. The most important micro elements are boron, zinc, iron, and copper. It's especially sensitive to zinc deficiency at early stages of growth. The negative effect of zinc deficiency cannot be remedied by applying at later stages of the plant growth. Zinc is a part of many enzymes and contributes to improving the exchange processes in the plant. Iron increases the efficacy of redox reactions and the process of photosynthesis. Boron and copper improve flowering and pollination and prevent the manifestation of grain deficiency, providing for filled corn ears.

**In the mineral nutrition of corn there are two critical periods:**

**The first** is the stage of 3-5 leaves, when the root system grows actively and the nutrients are absorbed from the soil, the generative organs start to form. Getting the full scope of necessary nutrients from fertilizers applied before sowing is impossible for the young corn plants due to insufficiently developed root system or weather conditions (drought, late frosts), manifestations of ion antagonism. Thus, it is very important to compensate for the lack of nutrients, especially zinc, during this period by foliar application.

**The second** one is before the start of rapid growth stage, that is from 8-10 leaves until the beginning of tasseling. Foliar nutrition during this period helps the plants to overcome the stress caused by post-emergence herbicides and stimulates the vegetative growth of plants. At this phase foliar nutrition with the full dose of the special fertilizer is very effective.

# ECOLINE

## Corn (Chelates)

Element		%
Nitrogen	N-NH <sub>2</sub>	16,0
Potassium	K <sub>2</sub> O	10,6
Magnesium	MgO	2,5
Sulfur	SO <sub>3</sub>	5,4
Iron	Fe	0,8
Manganese	Mn	0,8
Boron	B	0,4
Zinc	Zn	2,0
Copper	Cu	0,8
Density - 1,3		
pH - 6,5		



Complex concentrated fertilizer for foliar nutrition of corn, millet, sorghum, mogar, which meets the requirements of these crops for zinc supply. It increases stress resistance of the crops.

### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Corn	3 – 5 leaves	1,0 – 1,5
	8 – 10 leaves	1,5 – 2,0
Sorghum, mogar	Tillering – beginning of tasseling	1,5 – 2,0
Millet	Tillering – beginning of tasseling	1,5 – 2,0

- ✓ Contains a set of macro-and micro-nutrients necessary for corn nutrition in critical periods of development
- ✓ Mg, Zn, Mn, Fe, and Cu are in the form of 100% EDTA chelate
- ✓ Provides normal growth and development of the crop to realize its genetic potential
- ✓ Increases the resistance of the crop to stress factors
- ✓ Takes into account the increased requirements of plants for zinc. (The lack of zinc inhibits the biochemical processes in plants, they fall behind in their growth, and the grain yield is reduced.)





## MINERAL NUTRITION OF OILSEED CROPS

Oilseed crops are very demanding for the conditions of mineral nutrition. The most important macronutrients are nitrogen, phosphorus, potassium, magnesium, sulfur. Trace elements like boron, manganese, zinc, molybdenum and iron are also very important for oilseeds.

The formation of 1 ton of rapeseeds requires 50-70 kg of nitrogen, 25-30 kg of phosphorus, 40-70 kg of potassium, 40-70 kg of calcium, 7-12 kg of magnesium, 20-40 kg of sulfur, 80-120 g of boron, 400-550 g of manganese, 130-170 g of zinc, 4-6 g of molybdenum. Lack of boron in the autumn suspends the growth and development of the root system and growth point of winter oilseed rape. Inevitably, the accumulation of sugars and other high-energy substances is reduced, and their transportation to the root neck becomes more difficult. This affects overwintering, because the lack of boron deteriorates frost and winter hardiness of plants. The result is a decrease in the productivity of winter oilseed rape. For this crop it is also important to provide the plants with macro- and microelements in the period from budding to the beginning of seed ripening. It is the balanced nutrition with micronutrients that determines the fullness of the pods, and hence the level of yield.

In the nutrition of sunflower there are three main periods: the first - from the emergence of seedlings till the beginning of inflorescence formation, when the plants moderately absorb nitrogen and potassium but need a high amount of phosphorus; the second - from the beginning of inflorescence formation till the beginning of flowering, when the plants intensively absorb all the nutrients; and the third - from the beginning of flowering till the beginning of ripening, when the plants again moderately absorb nitrogen and phosphorus, but need more potassium.

In sunflower boron and copper increase the content of oil, zinc boosts the amount of phospholipids and organic acids. In addition, boron significantly reduces the damage of sunflower by white rot and other diseases, which helps to preserve and improve the quality of the yield. Sunflower is also very sensitive to sulfur and manganese deficiency. These elements have a direct impact on the assimilation of nitrogen by plants, the productivity of photosynthesis. Foliar nutrition of sunflower during seed formation provides for increased seed yield and oil content.



# ECOLINE

## Oilseed (*Chelates*)

Element		%
Nitrogen	N-NH <sub>2</sub>	11,0
Potassium	K <sub>2</sub> O	6,0
Magnesium	MgO	2,8
Sulfur	SO <sub>3</sub>	7,0
Iron	Fe	0,8
Manganese	Mn	1,7
Boron	B	2,1
Zinc	Zn	0,7
Copper	Cu	0,3
Density - 1,3		
pH - 6,5		



Complex concentrated fertilizer for foliar nutrition of oilseed crops. It increases the resistance of plants to drought, ensures normal growth and development of crops, improves yield quality.

### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Winter and spring oilseed rape	Budding	2,0 – 3,0
Sunflower	Inflorescence formation	1,5 – 2,0
Safflower	Before flowering	1,0 – 1,5

- ✓ Contains a set of macro-and micro-nutrients necessary for oil crops nutrition in the critical periods of development
- ✓ Mg, Zn, Mn, Fe, and Cu are in the form of 100% EDTA chelate
- ✓ Contains sulphur in the quantity that promotes the effective use of nitrogen
- ✓ Increases plant resistance to adverse factors of the environment (droughts)
- ✓ Increases the uptake of phosphorus, potassium, calcium, magnesium and micro-nutrients from soil and fertilizers
- ✓ Provides normal growth and development of the crop for the realization of its genetic potential
- ✓ Improves the quality of the yield



## MINERAL NUTRITION OF BEETS

Sugar, fodder and table beets are very demanding to the conditions of mineral nutrition. Out of the macronutrients, all the six are important (N, P, K, Ca, Mg, S). Out of the trace elements - the most important are boron, manganese, cobalt. Boron significantly affects carbohydrate and protein metabolism and other biochemical processes in plants. Lack of boron causes the manifestation of physiological diseases of beets, chlorosis of the core leaves, root rot, hollowness of roots, which significantly reduces the quality of the yield.

The physiological significance of manganese for beets is its participation in redox reactions in plant cells associated with the activity of oxidative enzymes - oxidases. It plays an important role in the processes of plant uptake of ammonium and nitrate nitrogen. In the case of manganese deficiency, the reduction of nitrate nitrogen is disrupted, which leads to the accumulation of nitrates in plant tissues.

Cobalt has a positive effect on energy metabolism, respiration and accumulation of sugars.

### **In the ontogenesis of beets there are several critical periods:**

1. Two leaves phase when the plants switch to autonomous nutrition.
2. The phase of row closure: rapid growth, accumulation of sugars require a high supply of nutrients. Foliar nutrition of plants stimulates physiological processes and compensates for the possible lack of mineral nutrients.
3. Phase of intensive accumulation of sugar in roots: the need for nutrients is high. Foliar nutrition with microelements enhances the resistance of plants to leaf diseases, has a positive effect on the accumulation of sugars and on the indicators of technological quality of roots.

# ECOLINE

## Beetroot (*Chelates*)\*

Element		%
Nitrogen	N-NH <sub>2</sub>	8,0
Potassium	K <sub>2</sub> O	8,0
Magnesium	MgO	2,8
Iron	Fe	0,8
Manganese	Mn	2,1
Boron	B	2,1
Zinc	Zn	0,7
Copper	Cu	0,28
Cobalt	Co	0,05
Density - 1,3		
pH - 6,5		



Complex concentrated fertilizer for sugar, fodder, table beets. It improves the work of the root system, helps prevent physiological diseases of beets, increases sugar content in the roots.

### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Sugar beets	Row closure	1,5 – 2,0
	The last fungicide treatment	1,5 – 2,0
Fodder beets	Row closure	2,0 – 3,0
Table beets	Row closure	2,0 – 3,0

- ✓ Contains a set of macro-and micro-nutrients necessary for beets in critical periods of development
- ✓ Mg, Zn, Mn, Fe, and Cu are in the form of 100% EDTA chelate
- ✓ Improves root system activity
- ✓ Contributes to prevention of physiological diseases (black heart, hollow heart)
- ✓ Increases the sugar content in the roots
- ✓ Reduces the content of alpha-amine nitrogen in roots

\*The fertilizer is delivered by prior order. For detailed information, please contact the distributors or regional representatives of ECOORGANIC LLC



## MINERAL NUTRITION OF VEGETABLES

The group of vegetable crops includes crops of several botanical families with different biological features. The mineral nutrition requirements of these crops are largely related to the quality and transportability of the yield and are quite similar.

An important quality feature for tomatoes is the dry matter content. The basis of their composition is sugars, so during the ripening of the fruits it is important to provide plants with potassium and boron. Easily available forms of calcium are needed for a strong skin to prevent cracking of the fruits during ripening and eliminate the development of physiological disease "apical rot". Green crops, cabbage, cucumbers under unbalanced conditions of mineral nutrition, shading can accumulate nitrates and nitrites in the commodity part of the crop. Reasonable doses of organic fertilizers and nitrogen prevent the accumulation of these substances. Optimal supply of plants with sulfur, magnesium, molybdenum helps to reduce the accumulation of nitrites and nitrates in the commodity part of the crop.

### **Critical periods in the mineral nutrition of vegetable crops:**

- rooting period (for the plants planted with seedlings): high demand for a balanced supply of micronutrients;
- budding and flowering period: providing boron and other microelements to regulate the processes of flowering and accumulation of sugars is an extremely important condition for pollination and ovary formation;
- ripening: first of all, calcium is necessary, which helps to strengthen cell walls and regulates the course of synthesis reactions in the plant. Improving the nutrition of plants with sulfur provides a more complete absorption of nitrogen and prevents the accumulation of nitrites and nitrates in the crop. Magnesium, iron and manganese, acting in a complex, increase the productivity of photosynthesis, due to which the dry matter content in the commodity part of the crop increases, thus improving the quality of the crop.

# ECOLINE

## Vegetable (Chelates)\*

Element		%
Nitrogen	N-NH <sub>2</sub>	9,0
Potassium	K <sub>2</sub> O	7,0
Calcium	CaO	3,5
Magnesium	MgO	2,5
Sulfur	SO <sub>3</sub>	3,0
Iron	Fe	0,9
Manganese	Mn	1,5
Boron	B	0,9
Zinc	Zn	0,15
Copper	Cu	0,8
Molybdenum	Mo	0,02
Density - 1,3		
pH - 7,5		



Complex concentrated microfertilizer, designed for foliar nutrition of vegetable crops in order to increase yield and improve its quality.

### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Cucumbers, zucchini, squash	Before flowering	1,5 – 2,0
Tomatoes, paprika	Beginning of fruit formation	1,5 – 2,0
Cabbage	Beginning of heading	2,0 – 3,0
	Maturation	1,0 – 2,0
Carrot	Beginning of root formation	2,0 – 3,0
Onion, garlic	Beginning of bulb formation	2,0 – 3,0

- ✓ Contains a set of macro-and micro-nutrients necessary for vegetables in the critical periods of development
- ✓ Mg, Zn, Mn, Fe, and Cu are in the form of 100% EDTA chelate
- ✓ Includes high content of calcium, magnesium and sulphur, which have a significant impact on the consumption of nitrogen and phosphorus, thus affecting the quality, storability and transportability of the harvest of vegetable crops
- ✓ Increases the resistance of plants to diseases

\*The fertilizer is delivered by prior order. For detailed information, please contact the distributors or regional representatives of ECOORGANIC LLC



## MINERAL NUTRITION OF FRUITS AND BERRIES

The question of optimization of mineral nutrition of fruit and berry crops is extremely important, because it influences on the quantity and quality of the yield. Out of the macronutrients, nitrogen, phosphorus, potassium, calcium and magnesium are the most required. The need for these elements depends on the crop and the age of the plantations. Apricot, for example, requires an enhanced supply of potassium, because with a unit of yield it bears out three times more of potassium than other stone fruits. Other crops need nitrogen to form essential yield.

The most important macronutrient of the second level is calcium. Its deficiency in apple fruits is manifested in the form of a physiological disease - bitter pit. Calcium is extremely important for strengthening cell walls - to preserve the marketability of cherries, improve the quality and transportability of strawberries and raspberries.

Among the trace elements, one of the most important in horticulture is boron. It affects the processes of pollination, promotes the accumulation of sugars in fruits and regulates a number of other processes. Adequate nutrition with zinc provides an increase in fruits yield and improves their quality and marketability. Depending on soil conditions, deficiency of other microelements, in particular iron, can be observed. Cereal crops need molybdenum fertilization in the period from the beginning of fruit formation to ripening. Remontant forms of raspberries and strawberries need a complex of macro and micronutrients before flowering. The most important for them are boron, zinc, iron (on carbonate soils). Kernel fruits need nitrogen, phosphorus, potassium, calcium, magnesium and trace elements - boron, zinc, iron, copper and manganese.

All fruit and berry crops, without exception, are affected by fungal diseases, so it is important to use phosphite fertilizers, which have a sustainable fungistatic effect and enhance the activity of fungicides.



## ECOLINE Fruit (Chelates)\*

Element		%
Nitrogen	N-NH <sub>2</sub>	7,2
Potassium	K <sub>2</sub> O	9,0
Calcium	CaO	2,4
Magnesium	MgO	1,2
Iron	Fe	0,8
Manganese	Mn	0,5
Boron	B	0,6
Zinc	Zn	0,6
Copper	Cu	0,4
Molybdenum	Mo	0,01
Density - 1,3		
pH - 7,5		

Complex concentrated microfertilizer which is developed for foliar nutrition of fruit and berry crops.

### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Pome fruits (apples, pears)	Beginning of fruit formation – beginning of ripening (2-3 treatments)	1,0 – 2,0
Stone fruits (cherries, apricots, peaches)	Beginning of fruit formation – beginning of ripening (2-3 treatments)	1,0 – 1,5
Berries	After flowering (2 treatments)	1,0 – 1,5

- ✓ Contains a set of macro-and micronutrients necessary for nutrition of fruit crops in critical periods of development
- ✓ Mg, Zn, Mn, Fe, and Cu are in the form of 100% EDTA chelate
- ✓ Improves the quality of the yield
- ✓ Stimulates plants resistance to diseases

\*The fertilizer is delivered by prior order. For detailed information, please contact the distributors or regional representatives of ECOORGANIC LLC

# ECOLINE Universal Growth (Chelates)\*

Element		%
Nitrogen	N-NH <sub>2</sub>	15,0
Potassium	K <sub>2</sub> O	4,0
Magnesium	MgO	3,5
Sulfur	SO <sub>3</sub>	3,5
Iron	Fe	0,8
Manganese	Mn	1,1
Boron	B	0,42
Zinc	Zn	1,1
Copper	Cu	0,42
Molybdenum	Mo	0,01
Density - 1,3		
pH - 6,5		



Complex concentrated microfertilizer for intensive plant growth at the initial stages of organogenesis.

## DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Cereals	Tillering – tube exit	2,0
Corn	8 – 10 leaves	2,0 – 2,5
Cabbage	Beginning of head formation	2,0 – 2,5
Fodder beets	Row closure	2,0 – 3,0

- ✓ Contains a set of macro-and micro-nutrients, which have a decisive influence on the processes of vegetative growth of plants, facilitate the photosynthesis
- ✓ Developed specifically for the needs of the plants for which the growth of vegetative mass is important
- ✓ Meets the increased requirements of plants for zinc supply
- ✓ High sulfur content promotes better nitrogen uptake
- ✓ Mg, Zn, Mn, Fe, and Cu are in the form of 100% EDTA chelate

\*The fertilizer is delivered by prior order. For detailed information, please contact the distributors or regional representatives of ECOORGANIC LLC



The background is a solid green color. Overlaid on the left side is a complex network of thin white lines connecting various circular nodes. Some nodes are solid white, while others are solid dark green. The network is denser on the left and fades towards the right. The text is centered in the upper half of the image.

# **FERTILIZERS IN THE FORM OF ORGANIC AND MINERAL COMPLEX**

# ECOLINE

## Calcium-Boron

(Organic and mineral)\*

Element		%
Nitrogen	N-NH <sub>2</sub>	12,5
Calcium	CaO	24,0
Boron	B	0,05
Density - 1,3		
pH - 7,0		



Combined highly concentrated microfertilizer in the form of organic and mineral complex. It is developed to eliminate the manifestation of calcium and boron deficiency, as well as for foliar fertilization of crops, especially demanding for calcium and boron provision (vegetables and fruits).

### DOSE RATE AND TIME OF APPLICATION

Культури	Time of application	Dose rate, l/ha
Fruits, vegetables	Beginning of fruit formation (2-3 treatments)	3,0
Berries	Beginning of fruit formation (2-3 treatments)	2,0 – 3,0

# GROS

## Cobalt\*

Element		%
Cobalt	Co	5,0
Nitrogen	N-NH <sub>2</sub>	2,5
Sulfur	SO <sub>3</sub>	6,7
Density - 1,23		
pH - 7,0		



This special liquid fertilizer is recommended for foliar nutrition of crops which are sensitive to cobalt deficiency in the first part of vegetation. Cobalt is involved in nitrogen fixation of atmospheric nitrogen by legumes, activates the work of enzymes in plant and animal organisms, promotes normalization of metabolism, increases drought resistance of plants, improves the formation of chlorophyll.

### DOSE RATE AND TIME OF APPLICATION

Crop	Time of application	Dose rate, l/ha
Legumes	Budding – grains formation in the pods	1,5 – 2,0
Sugar beets	6 – 8 leaves, crop cover	0,5 – 2,0
Hayfields and pastures	At the beginning of regrowth of grass after mowing or the next cycle of grazing on cultivated pastures	1,5 – 2,0
Other crops	In case of need	1,5 – 2,0

\*The fertilizer is delivered by prior order. For detailed information, please contact the distributors or regional representatives of ECOORGANIC LLC



**LIQUID START  
FERTILIZERS**

**FITOSTART  
(N-P-K)**

**MULTISTART  
(N-P-K + MICROELEMENTS)**

## FITOSTART (N-P-K)

A special line of liquid complex fertilizers, developed to provide crops with macronutrients at the initial stages of growth and development depending on soil conditions

## MULTISTART (N-P-K + ME)

A special line of liquid complex fertilizers, developed according to the needs of particular crops in macro- and microelements at the initial stages of growth and development

FITOSTART and MULTISTART fertilizers can be used at different stages of growing of agricultural crops, namely:

- first of all, as a starting fertilizer for application into the seed bed at sowing to provide for intensive start of plants;
- for the correction of mineral nutrition in fertigation systems, in order to increase yield and improve yield quality;
- as foliar nutrition in critical periods of growth and development of crops

### **FITOSTART and MULTISTART main advantages:**

- balanced composition of nutrition elements;
- containing two forms of phosphorus;
- long-lasting product stability due to sustainable formulation;
- no ballast or harmful components;
- low salt index;
- efficacy in a wide range of soil and air temperatures.

### **Recommendations for the application of fertilizers**

#### **FITOSTART and MULTISTART:**

1. As a start fertilizer for wide-row crops: 10.0 - 40.0 l/ha
2. In fertigation systems: 1 - 5% concentration of the water solution
3. For foliar nutrition: 2.0 - 5.0 l/ha

## Chemical composition of FITOSTART fertilizers

Brand of fertilizer	Content of nutritional elements							Received from
	N % mass	P <sub>2</sub> O <sub>5</sub> % mass	K <sub>2</sub> O % mass	N g/l	P <sub>2</sub> O <sub>5</sub> g/l	K <sub>2</sub> O g/l	pH Density	
FITOSTART Fast	3	18	18	40	250	250	7,0 1,36	Orthophosphoric acid, potassium hydroxide, ammonium hydroxide, urea, phosphite acid
FITOSTART Jet	8	24		100	300	0	7,5 1,3	Orthophosphoric acid, ammonium hydroxide, phosphite acid
FITOSTART Power		21	22	0	300	310	7,5 1,42	Orthophosphoric acid, potassium hydroxide, phosphite acid
FITOSTART Energy	4	21	14	50	300	200	7,0 1,41	Orthophosphoric acid, potassium hydroxide, ammonium hydroxide, phosphite acid
FITOSTART Sprint	6	24	6	80	320	80	7,0 1,31	Orthophosphoric acid, potassium hydroxide, ammonium hydroxide, phosphite acid
FITOSTART Balance	10	10	10	130	130	130	7,5 1,27	Orthophosphoric acid, potassium hydroxide, ammonium hydroxide, urea, phosphite acid
FITOSTART Potassium			24	0	3	300	9,5 1,27	Potassium acetate
FITOSTART Supraphos		60		5	850	0	2,5 1,41	Phosphite acid

Chemical composition of MULTISTART fertilizers

Brand of fertilizer	Content of nutritional elements															pH	Density
	Macronutrients			Mesonutrients					Micronutrients								
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	CaO	MgO	SO <sub>3</sub>	SiO <sub>2</sub>	Fe	Mn	B	Zn	Cu	Mo	Co			
MULTISTART Corn	9	25						0.2	0.4	0.1	0.2	0.1	0.03			6.8	1.28
MULTISTART Sunflower	9	25						0.15	0.3	0.5	0.3	0.05	0.01			6.8	1.28
MULTISTART Legumes	9	25						0.2	0.2	0.1	0.4	0.1	0.05	0.01		6.8	1.28
MULTISTART Beets	9	25						0.15	0.5	0.4	0.2	0.05	0.02	0.02		6.8	1.28
MULTISTART Universal	9	25						0.15	0.3	0.3	0.3	0.05	0.02			6.8	1.28

An abstract geometric pattern consisting of a network of thin white lines connecting various circular nodes. Some nodes are solid dark green, while others are white with dark green outlines. The pattern is more dense on the right side of the image, creating a sense of depth and complexity. The background is a solid, vibrant green.


# NUTRITION SYSTEMS

Foliar nutrition systems are developed based on the biological needs of crops in key phases of growth and development. To adapt them to the specific field conditions, it is necessary to consult an agronomist



## 30



**NUTRITION SYSTEMS** **SPRING CEREALS**

Improvement of grain quality and control of fungal diseases of the ear						ECOLINE Cereal (Chelates) 1.5 l/ha
Providing additional nutrition					GROS Phosphito-NP 1.5 - 2.0 l/ha	
Activation of plant growth, strengthening immunity, control of fungal diseases		ECOLINE Phosphite (K) 1.5 l/ha				
Provision of nutrition elements, strengthening of immunity, protection against pathogens of fungal diseases	GROS Rootgrowth 1.0 l/t + ECOLINE Phosphite (K) 0.5 l/t					
Improvement of grain quality and control of fungal diseases of the ear					ECOLINE Cereal (Chelates) 1.5 l/ha	
Activation of plant growth, strengthening immunity, control of fungal diseases		ECOLINE Phosphite (K) 1.5 l/ha				
Providing nutrients from the time of sowing till the transition to nutrition from the root system	GROS Rootgrowth 1.0 l/t					
	Seed treatment	Tillering	Tube exit	Flag leaf	Earing	Ripening

NUTRITION SYSTEMS CORN

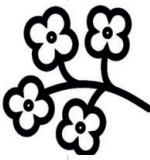
INTENSIVE					BASIC				
Improvement of yield quality									
Stimulation of plant growth and formation of yield components						ECOLINE Boron (Premium) 1,0 l/ha + ECOLINE Corn (Chelates) 1,5 l/ha			
Antistress effect and growth stimulation			ECOLINE Phosphite (K-Amino) 2,0 l/ha						
Improvement of plant nutrition with zinc, enhancement of root system growth			GROS Amino-Zn 1,0 l/ha + ECOLINE Phosphite (K) 1,0 l/ha						
Quick start of the crop				FITOSTART Jet 8-24-0 - 30 l/ha					
Supporting of plant growth and formation of yield components						ECOLINE Corn (Chelates) 1,5 l/ha + ECOLINE Boron (Organic) 1,0 l/ha			
Elimination of visual signs of phosphorus deficiency, reducing negative effects of stress						ECOLINE Phosphite (K) 1,0 l/ha + ECOLINE Corn (Chelates) 1,0 l/ha			
Improvement of plant nutrition with zinc, enhancement of root system growth			ECOLINE Zinc (Chelate) 1,0 l/ha + ECOLINE Phosphite (K) 1,0 l/ha						
Quick start of the crop				FITOSTART Jet 8-24-0 - 30 l/ha					
				In-furrow			6 – 8 leaves	Tasselling	
									Grain development

## NUTRITION SYSTEMS SUNFLOWER



	INTENSIVE					BASIC				
Improvement of yield, inhibition of fungal diseases development										ECOLINE Oilseed (Chelates) 1.5 l/ha + ECOLINE Phosphate (K) 1.0 l/ha
Prevention of reduction of yield elements										ECOLINE Boron (Premium) 1.0 l/ha + ECOLINE Oilseed (Chelates) 1.5 l/ha
Elimination of stress caused by weather conditions or application of CCP. Prevention of fungal diseases										ECOLINE Phosphate (K-Amino) 2.0 l/ha + ECOLINE Boron (Organic) 1.0 l/ha
Formation of yield elements, enhancement of vegetative mass growth										GROS Phosphito-NP 1.5 - 2.0 l/ha + ECOLINE Boron (Premium) 1.0 l/ha
Quick start of the crop										FITOSTART Jet 8-24-0 30 l/ha
Improvement of yield and seed quality										ECOLINE Oilseed (Chelates) 1.5 l/ha
Formation of yield elements										ECOLINE Boron (Organic) 1.0 l/ha
Formation of yield elements										ECOLINE Boron (Premium) 1.0 l/ha + ECOLINE Phosphate (K) 1.0 l/ha
Quick start of the crop										FITOSTART Jet 8-24-0 30 l/ha
										In-furrow
										6-8 pairs of leaves
										"star" phase
										Inflorescence formation



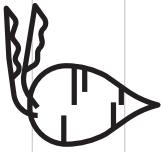
NUTRITION SYSTEMS WINTER OILSEED RAPE

BASIC					Pods formation
Improvement of yield and seed quality				ECOLINE Oilseed (Chelates) 1,0 l/ha	
Improvement of yield elements formation and the process of photosynthesis				ECOLINE Boron (Premium) 1,0 l/ha + GROS Quitselium 1,5 l/ha	Budding
Inhibition of disease development (fungicide effect), improvement of mineral nutrition conditions		ECOLINE Phosphite (K) 1,5 l/ha + ECOLINE Oilseed (Chelates) 1,0 l/ha			8-12 leaves (rosette) spring
Improvement of root system development, increase of sugar content, protection against fungal diseases	ECOLINE Boron (Premium) 1,0 l/ha + ECOLINE Phosphite (K) 1,0 l/ha				4-6 leaves (autumn)
INTENSIVE					
Improvement of yield and seed quality				ECOLINE Oilseed (Chelates) 2,0 l/ha	
Improvement of yield elements formation				ECOLINE Boron (Premium) 1,0 l/ha	Budding
Inhibition of disease development (fungicide effect), improvement of mineral nutrition conditions		ECOLINE Phosphite (K) 1,0 l/ha			8-12 leaves (rosette) spring
Improvement of root system development, increase of sugar content, protection against fungal diseases	ECOLINE Boron (Organic) 1,0 l/ha + ECOLINE Phosphite (K) 1,0 l/ha				4-6 leaves (autumn)

## NUTRITION SYSTEMS **LEGUMES**

	INTENSIVE				BASIC
Yield increase and seed quality improvement				ECOLINE Legumes (Chelates) 1,5 l/ha + ECOLINE Phosphite (K) 1,5 l/ha + 5 kg/ha urea	
Intensification of physiological processes. Improvement of chlorophyll synthesis in the leaves			ECOLINE Phosphite (K) 1,0 l/ha + GROS Quitselium 1,5 l/ha		
Improvement of pollination processes and strengthening plant immunity		ECOLINE Boron (Organic) 1,0 l/ha + GROS Amino-Zn 0,5 -1,5 l/ha			
Activation of nitrogen fixation process	ECOLINE Molybdenum (Complex) 1,0 l/ha + GROS Rootgrowth 1,0 l/ha				
Intensification of physiological processes				ECOLINE Legumes (Chelates) 1,0 l/ha + ECOLINE Phosphite (K) 1,0 l/ha	
Improvement of pollination		ECOLINE Boron (Opti) 1,5 l/ha + ECOLINE Legumes (Chelates) 1,0 l/ha			
Activation of nitrogen fixation process	ECOLINE Molybdenum (Complex) 1,0 l/ha + ECOLINE Phosphite (K) 1,5 l/ha				
	The first pair of true leaves	Budding	Pods formation	Ripening	

## NUTRITION SYSTEMS SUGAR BEETS

Sugar content increase. Enhanced synthesis and outflow of sugar into the root, improvement of technological quality of raw sugar							ECOLINE Phosphite (K-Amino) 2,0 l/ha
	Additional mineral nutrition of plants						ECOLINE Magnesium (Chelates) 2,0 l/ha + GROS Phosphito-NP 1,5 l/ha
	Enhancement of sugar accumulation, prevention of physiological diseases				ECOLINE Boron (Premium) 1,5 l/ha + ECOLINE Copper (Chelate) 0,5 l/ha		
	Enhancement of plant growth		ECOLINE Boron (Premium) 1,0 l/ha	ECOLINE Universal Growth (Amino) 1,5 l/ha + ECOLINE Phosphite (K) 1,5 l/ha			
Quick start of the crop		FITOSTART Jet 8-24-0 - 30 l/ha					
Sugar content increase. Enhanced synthesis and outflow of sugar into the root, improvement of technological quality of raw sugar							ECOLINE Phosphite (K-Amino) 2,0 l/ha
	Additional mineral nutrition of plants						ECOLINE Magnesium (Chelates) 1,0 l/ha + ECOLINE Boron (Premium) 1,0 l/ha
	Enhancement of sugar accumulation, prevention of physiological diseases					ECOLINE Boron (Premium) 1,0 l/ha	
	Enhancement of plant growth			ECOLINE Universal Growth (Amino) 1,5 l/ha + GROS Phosphito-NP 1,5 l/ha			
Quick start of the crop		FITOSTART Jet 8-24-0 - 30 l/ha					
	In-furrow		2 pairs of true leaves	4-5 pairs of true leaves	Row closure	Crop cover	1 month before harvesting

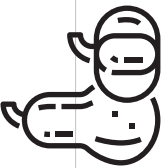
# NUTRITION SYSTEMS POTATOES

Yield increase and yield quality improvement					INTENSIVE	ECOLINE Phosphate (K) 1,5 - 2,0 l/ha + ECOLINE Magnesium (Chelates) 1,5 - 2,0 l/ha
Prevention of reduction of yield elements, improvement of plant nutrition					BASIC	ECOLINE Boron (Premium) 1,0 l/ha + ECOLINE Universal Growth (Amino) 2,0 l/ha
Additional nutrition during the formation of yield elements						ECOLINE Magnesium (Chelates) 1,5 l/ha + ECOLINE Phosphate (K) 1,5 l/ha
Improvement of root system growth	GROS Rootgrowth 1,0 - 2,0 l/t					
Additional nutrition during the formation of yield elements						ECOLINE Magnesium (Chelates) 2,0 l/ha
Prevention of reduction of yield elements					BASIC	ECOLINE Boron (Premium) 1,0 l/ha
Additional nutrition during the formation of yield elements						ECOLINE Magnesium (Chelates) 1,5 l/ha + ECOLINE Phosphate (K) 1,5 - 2,0 l/ha
Improvement of root system growth	GROS Rootgrowth 1,0 - 1,5 l/t					
	Pre-sowing seed treatment					
						Flowering




# NUTRITION SYSTEMS **MELONS (CUCUMBERS, ZUCCHINI, SQUASH, PUMPKINS)**

Optimization of mineral nutrition			GROS Quitselium 2,0 l/ha + ECOLINE Boron (Organic) 1,0 l/ha (2 – 3 treatments with 14 day interval)	INTENSIVE
	Improvement of formation of generative organs, better resistance to powdery mildew fungi			
	Enhancement of plant growth and development. Improvement of root development. Strengthening of immune system	ECOLINE Phosphite (K) 1,5 - 2,0 l/ha		
Optimization of mineral nutrition			GROS Quitselium 1,5 l/ha (2 – 3 treatments with 14 day interval)	BASIC
Improvement of formation of generative organs, better resistance to powdery mildew fungi				
Enhancement of plant growth and development. Improvement of root development. Strengthening of immune system	ECOLINE Phosphite (K) 1,5 - 2,0 l/ha	ECOLINE Boron (Organic) 2,0 l/ha + ECOLINE Magnesium (Chelates) 1,0 l/ha		
	2 - 3 true leaves	Active growth - budding	Fruit formation	Fruiting






## NUTRITION SYSTEMS **CABBAGE**

	INTENSIVE				BASIC			
	Improvement of yield quantity and quality. Prevention of excessive nitrate nitrogen accumulation	Optimization of mineral nutrition, increasing resistance to diseases	Improvement of nitrogen assimilation, formation of the commodity part of the crop, increase of resistance to diseases	Enhancement of plant growth and development. Improvement of root development. Strengthening of immune system	Improvement of yield quantity and quality. Prevention of excessive nitrate nitrogen accumulation	Optimization of mineral nutrition	Improvement of nitrogen assimilation, formation of the commodity part of the crop, increase of resistance to diseases	Enhancement of plant growth and development. Improvement of root development. Strengthening of immune system
				ECOLINE Magnesium (Chelates) 2,0 l/ha + GROS Rootgrowth 2,0 l/ha				After rooting of seedlings
			ECOLINE Boron (Premium) 2,0 l/ha + GROS Phosphito-NP 2,0 l/ha: in 10 days ECOLINE Manganese (Chelate) 1,5 l/ha				ECOLINE Magnesium (Chelates) 2,0 l/ha + GROS Phosphito-NP 1,5 l/ha: in 10 days ECOLINE Manganese (Chelate) 1,0 l/ha	Active growth
		ECOLINE Magnesium (Chelates) 1,5 l/ha + GROS Phosphito-NP 2,0 l/ha				ECOLINE Magnesium (Chelates) 1,5 l/ha		Beginning of yield elements formation
								Beginning of ripening
	ECOLINE Magnesium (Chelates) 1,0 l/ha + ECOLINE Phosphite (K-Amino) 2,0 l/ha + ECOLINE Molybdenum (Complex) 1,0 l/ha				ECOLINE Magnesium (Chelates) 2,0 l/ha + ECOLINE Molybdenum (Complex) 1,0 l/ha			


NUTRITION SYSTEMS TOMATOES

INTENSIVE					BASIC				
Improvement of yield quantity and quality				ECOLINE Calcium-Boron (Chelates) 2,0 – 3,0 l/ha + GROS Phosphito-NP 1,5 l/ha (2 treatments with 10 day interval)					
Optimization of mineral nutrition				GROS Quitsellum 1,5 l/ha + ECOLINE Magnesium (Chelates) 1,5 l/ha + ECOLINE Copper (Chelate) 1,0 l/ha					
Improvement of generative organs formation			ECOLINE Boron (Premium) 2,0 l/ha + GROS Phosphito-NP 2,0 l/ha						
Enhancement of plant growth and development. Improvement of root development. Strengthening of immune system		ECOLINE Magnesium (Chelates) 2,0 l/ha + GROS Rootgrowth 2,0 l/ha							
Improvement of yield quantity and quality				ECOLINE Calcium-Boron (Chelates) 2,0 l/ha					
Optimization of mineral nutrition				ECOLINE Magnesium (Chelates) 1,5 l/ha + ECOLINE Calcium-Boron (Chelates) 1,5 l/ha					
Improvement of generation organs formation			ECOLINE Boron (Organic) 2,0 l/ha + GROS Phosphito-NP 1,5 l/ha						
Enhancement of plant growth and development. Improvement of root development. Strengthening of immune system		ECOLINE Magnesium (Chelates) 2,0 l/ha + ECOLINE Phosphite (K) 2,0 l/ha							
After rooting of seedlings					Active growth		Fruit formation		Beginning of ripening


# NUTRITION SYSTEMS ONION AND GARLIC

Improvement of yield quantity and quality	Optimization of mineral nutrition	Stimulation of plant growth and development	Enhancement of plant growth and development	Treatment with 0.03% solution of GROS Rootgrowth	ECOLINE Universal Growth (Amino) 2,0 l/ha + GROS Phosphito-NP 2,0 l/ha				ECOLINE Magnesium (Chelates) 1,5 l/ha + ECOLINE Phosphite (K-Zn) 1,5 l/ha	GROS Phosphito-NP 2,0 l/ha + ECOLINE Boron (Opti) 1,5 l/ha	ECOLINE Magnesium (Chelates) 2,0 - 2,5 l/ha	INTENSIVE
Optimization of mineral nutrition	Stimulation of plant growth and development	Enhancement of plant growth and development	Treatment with 0.03% solution of GROS Rootgrowth						ECOLINE Magnesium (Chelates) 1,5 l/ha + ECOLINE Phosphite (K-Zn) 1,5 l/ha	GROS Phosphito-NP 1,5 l/ha + ECOLINE Boron (Opti) 1,0 l/ha		BASIC
Enhancement of plant growth and development			Treatment with 0.03% solution of GROS Rootgrowth	ECOLINE Universal Growth (Amino) 2,0 l/ha	ECOLINE Universal Growth (Amino) 2, l/ha							
Seed treatment (bulbs, cloves)												
Beginning of ripening												


NUTRITION SYSTEMS POME FRUITS

INTENSIVE					BASIC				
Accumulation of plastic substances, prevention of fungal diseases				ECOLINE Copper (Chelate) 2,0 - 4,0 l/ha or ECOLINE Phosphate (K) 3,0 - 4,0 l/ha + ECOLINE Boron (Premium) 1,5 l/ha					
Improvement of yield quantity and quality				ECOLINE Universal Growth (Amino) 2,0 l/ha + ECOLINE Calcium-Boron (Chelates) 2,0 - 2,5 l/ha (2 treatments with 14 day interval)					
Improvement of mineral nutrition			ECOLINE Universal Growth (Amino) 2,0 l/ha + ECOLINE Calcium-Boron (Chelates) 2,0 - 2,5 l/ha						
Preservation and development of the ovary			ECOLINE Phosphate (K-Zn) 2,0 l/ha + ECOLINE Magnesium (Chelates) 1,5 l/ha						
Improvement of flowers pollination and fertility		ECOLINE Boron (Premium) 1,0 - 1,5 l/ha							
Accumulation of plastic substances, prevention of fungal diseases				ECOLINE Copper (Chelate) 2,0 - 4,0 l/ha or ECOLINE Phosphate (K) 3,0 - 4,0 l/ha + ECOLINE Boron (Premium) 1,5 l/ha					
Improvement of yield quantity and quality				ECOLINE Universal Growth (Amino) 2,0 l/ha + ECOLINE Calcium-Boron (Chelates) 2,0 - 2,5 l/ha					
Preservation and development of the ovary			ECOLINE Phosphate (K-Zn) 2,0 l/ha						
Improvement of flowers pollination and fertility		ECOLINE Boron (Premium) 1,0 - 1,5 l/ha							
		Green tip	After flowering	Ovary shedding	Fruit formation				After harvesting


# NUTRITION SYSTEMS STONE FRUITS

BASIC					INTENSIVE	
Accumulation of plastic substances, prevention of fungal diseases					ECOLINE Copper (Chelate) 2,0 - 4,0 l/ha or ECOLINE Phosphite (K) 3,0 - 4,0 l/ha + ECOLINE Boron (Premium) 1,5 l/ha	
Improvement of yield quantity and quality					ECOLINE Calcium-Boron (Chelates) 2,0 l/ha + ECOLINE Phosphite (K-Zn) 1,5 l/ha (2 treatments with 10 day interval)	
Improvement of mineral nutrition				ECOLINE Magnesium (Chelates) 2,0 l/ha + GROS Phosphito-NIP 2,0 l/ha		
Preservation and development of the ovary			ECOLINE Phosphite (K-Zn) 2,0 l/ha + ECOLINE Manganese (Chelate) 1,0 l/ha			
Improvement of flowers pollination and fertility	ECOLINE Boron (Premium) 1,5 l/ha					
Accumulation of plastic substances, prevention of fungal diseases					ECOLINE Copper (Chelate) 2,0 - 4,0 l/ha or ECOLINE Phosphite (K) 3,0 - 4,0 l/ha + ECOLINE Boron (Premium) 1,5 l/ha	
Improvement of yield quantity and quality					ECOLINE Calcium-Boron (Chelates) 2,0 l/ha	
Improvement of mineral nutrition			ECOLINE Magnesium (Chelates) 2,0 l/ha			
Preservation and development of the ovary		ECOLINE Phosphite (K-Zn) 2,0 l/ha				
Improvement of flowers pollination and fertility	ECOLINE Boron (Premium) 1,5 l/ha					
	Green tip	After flowering	Ovary shedding	Fruit formation	After harvesting	


NUTRITION SYSTEMS GRAPES

INTENSIVE					BASIC				
Accumulation of plastic substances, prevention of fungal diseases				ECOLINE Copper (Chelate) 2,0 - 4,0 l/ha or ECOLINE Phosphite (K) 3,0 - 4,0 l/ha					
Improvement of yield quantity and quality, inhibition of fungal diseases development			ECOLINE Magnesium (Chelates) 2,0 l/ha + ECOLINE Phosphite (K) 2,0 l/ha (2 treatments with 10-14 day interval)						
Providing a balanced nutrition during the development of yield elements		ECOLINE Boron (Premium) 1,5 l/ha + GROS Quitselium 2,0 l/ha							
Improvement of the conditions of mineral nutrition, prevention of manifestation of nutrient deficiency	ECOLINE Phosphite (K) 1,5 - 2,0 l/ha + ECOLINE Iron (Chelate) 1,5 l/ha								
Accumulation of plastic substances, prevention of fungal diseases				ECOLINE Copper (Chelate) 2,0 - 4,0 l/ha or ECOLINE Phosphite (K) 3,0 - 4,0 l/ha					
Improvement of yield quantity and quality					ECOLINE Magnesium (Chelates) 2,0 l/ha + ECOLINE Phosphite (K) 1,5 l/ha				
Supporting formation of generative organs		ECOLINE Boron (Premium) 1,5 l/ha							
Improvement of the conditions of mineral nutrition, prevention of manifestation of nutrient deficiency	ECOLINE Phosphite (K) 1,5 - 2,0 l/ha + ECOLINE Iron (Chelate) 1,5 l/ha								
	4-5 leaves	Budding	Formation of grapes - end of grapes growth						After harvesting

# NUTRITION SYSTEMS RASPBERRIES


SUMMER-BEARING RASPBERRIES				
Next season disease prevention				ECOLINE Phosphate (K) 3,0 l/ha + ECOLINE Boron (Premium) 1,5 l/ha
Providing the necessary macro and micronutrients. Improving the quality and transportability of berries		ECOLINE Magnesium (Chelates) 1,5 l/ha + ECOLINE Calcium-Boron (Chelates) 2,0 l/ha + GROS Phosphito-NP 1,5 l/ha		
Regulation of pollination and flowering processes. Fungicide effect. Improvement of berries quality	ECOLINE Boron (Premium) 1,5 l/ha + ECOLINE Phosphate (K) 1,5 l/ha			
EVER-BEARING RASPBERRIES				
Next season disease prevention				ECOLINE Phosphate (K) 3,0 l/ha + ECOLINE Boron (Premium) 1,5 l/ha
Improvement of yield quantity and quality				ECOLINE Magnesium (Chelates) 2,0 l/ha + ECOLINE Phosphate (K-Amino) 2,5 l/ha
Preparing plants for the next wave of flowering and fruiting			GROS Quitselium 2,0 l/ha + ECOLINE Boron (Premium) 2,0 l/ha	
Providing the necessary macro and micronutrients. Improving the quality and transportability of berries		ECOLINE Magnesium (Chelates) 2,0 l/ha + ECOLINE Calcium-Boron (Chelates) 2,0 l/ha		
Regulation of pollination and flowering processes. Fungicide effect. Improvement of berries quality	ECOLINE Boron (Premium) 1,5 l/ha + ECOLINE Phosphate (K) 1,5 l/ha			
	Green tip	After flowering	After the first harvesting	After the second wave of blooming
				
				After harvesting

NUTRITION SYSTEMS STRAWBERRIES


SUMMER-BEARING STRAWBERRIES					
Next season disease prevention					ECOLINE Phosphate (K) 3,0 l/ha
Providing the necessary macro and micronutrients. Improving the quality and transportability of berries		ECOLINE Magnesium (Chelates) 1,5 l/ha + ECOLINE Calcium-Boron (Chelates) 2,0 l/ha + GROS Phosphito-NP 1,5 - 2,0 l/ha			
Regulation of pollination and flowering processes. Fungicide effect. Improvement of berries quality	ECOLINE Boron (Premium) 1,0 l/ha + ECOLINE Phosphate (K) 1,0 l/ha				
EVER-BEARING STRAWBERRIES					
Next season disease prevention					ECOLINE Phosphate (K) 3,0 l/ha
Improvement of yield quantity and quality				GROS Quitselium 1,5 l/ha + ECOLINE Phosphate (K-Amino) 2,0 l/ha	
Preparing plants for the next wave of flowering and fruiting			ECOLINE Universal Growth (Amino) 1,0 l/ha + ECOLINE Boron (Organic) 2,0 l/ha + GROS Phosphito-NP 2,0 l/ha		
Providing the necessary macro and micronutrients. Improving the quality and transportability of berries		ECOLINE Magnesium (Chelates) 2,0 l/ha + ECOLINE Calcium-Boron (Chelates) 2,5 l/ha + GROS Phosphito-NP 1,5 - 2,0 l/ha			
Regulation of pollination and flowering processes. Fungicide effect. Improvement of berries quality	ECOLINE Boron (Premium) 1,0 l/ha + ECOLINE Phosphate (K) 1,0 l/ha				
	Green tip	After flowering	After the first harvesting	After the second wave of blooming	After harvesting



# NUTRITION SYSTEMS FRUITING BLUEBERRIES


Accumulation of plastic substances, prevention of fungal diseases						ECOLINE Copper (Chelate) 2,0 - 4,0 l/ha or ECOLINE Phosphate (K) 3,0 - 4,0 l/ha+ ECOLINE Boron (Premium) 1,5 l/ha
Improvement of yield quantity and quality				ECOLINE Phosphate (K) 1,5 l/ha + ECOLINE Calcium-Boron (Chelates) 3,0 l/ha (2 treatments with 14 day interval)	ECOLINE Magnesium (Chelates) 1,0 l/ha+ ECOLINE Calcium-Boron (Chelates) 2,0 l/ha	
Optimization of mineral nutrition				ECOLINE Phosphate (K-Amino) 1,5 l/ha+ ECOLINE Magnesium (Chelates) 2,5 l/ha		
Preservation and development of the ovary			GROS Quitsellum 2,0 l/ha			
Promoting better plant development	ECOLINE Phosphate (K-Amino) 1,0 l/ha	Green tip	Budding	Beginning of flowering	Berry formation	Ripening
						After harvesting

# NUTRITION SYSTEMS WALNUTS YOUNG TREES

Fungistatic effect, accumulation of plastic substances for a powerful start in the spring of next year			ECOLINE Phosphite (K) 2,0 l/ha + ECOLINE Boron (Organic) 1.5 l/ha		At the end of vegetation season
Increasing resistance to high temperatures; providing nutrients that can be blocked by high calcium content in the soil			ECOLINE Zinc (Chelate) 1.5 l/ha + ECOLINE Iron (Chelate) 1,0 l/ha		
Enhancing the growth of the root system, increasing the resistance of plants to adverse conditions, providing accessible forms of meso- and micronutrients		ECOLINE Phosphite (K-Zn) 2,0 l/ha + ECOLINE Magnesium (Chelates) 1.5 l/ha			
	Beginning of leaves formation		During the hottest period		

BASIC

NUTRITION SYSTEMS WALNUTS  
YOUNG FRUITING TREES

Increasing yield and resistance of plants to fungal diseases, accumulation of plastic substances for a powerful start in the spring of next year				ECOLINE Phosphite (K) 2,0 l/ha + ECOLINE Boron (Organic) 1,0 l/ha*	
Increasing resistance to high temperatures, providing nutrients that can be blocked by high calcium content in the soil			ECOLINE Zinc (Chelate) 1,5 l/ha + ECOLINE Iron (Chelate) 1,0 l/ha	ECOLINE Magnesium (Chelates) 2,0 l/ha	
Enhancing the growth of the root system, increasing the resistance of plants to adverse conditions, providing accessible forms of meso- and micronutrients	ECOLINE Phosphite (K-Zn) 2,0 l/ha + ECOLINE Magnesium (Chelates) 1,5 l/ha				
	Beginning of leaves formation	After flowering	Pea-size ovary	Nut diameter 1-1.5 cm	

In case of local (discrete) method of spraying the dose of fertilizers needs to be adjusted according to the treated area.

\* twice with an interval of 10-14 days

## NUTRITION SYSTEMS ALMONDS


Increasing resistance of plants to fungal diseases, accumulation of plastic substances for a powerful start in the spring of next year					ECOLINE Copper (Chelate) 2,0 - 4,0 l/ha or ECOLINE Phosphate (K) 3,0 - 4,0 l/ha + ECOLINE Boron (Premium) 1,5 l/ha
Improvement of yield quantity and quality					ECOLINE Phosphate (K-Zn) 1,5 l/ha + ECOLINE Magnesium (Chelates) 1,5 l/ha
Increasing resistance to high temperatures; providing nutrients that can be blocked by high calcium content in the soil			ECOLINE Magnesium (Chelates) 2,0 l/ha + ECOLINE Zinc (Chelate) 1,0 l/ha		
Enhancing the growth of the root system, increasing the resistance of plants to adverse conditions, providing accessible forms of meso- and micronutrients		ECOLINE Phosphate (K-Zn) 2,0 l/ha + ECOLINE Magnesium (Chelates) 1,0 l/ha			
Improving pollination and resistance to low temperatures during flowering	ECOLINE Boron (Premium) 1,5 l/ha			After flowering	
	Beginning of leaves formation		After physiological ovary shedding	Nuts formation	After harvesting



In case of local (discrete) method of spraying the dose of fertilizers needs to be adjusted according to the treated area.

\* twice with an interval of 10-14 days

NUTRITION SYSTEMS HAZELNUTS

Disease prevention; promoting the accumulation of plastic substances			ECOLINE Phosphite (K) 3,0 l/ha + ECOLINE Boron (Organic) 1,5 l/ha		BASIC
	Optimization of mineral nutrition during high temperatures and at the beginning of the formation of next year's yield buds	ECOLINE Boron (Organic) 1,5 l/ha + ECOLINE Phosphite (K-Zn) 2,0 l/ha + ECOLINE Magnesium (Chelates) 1,5 l/ha			
	Optimization of mineral nutrition	ECOLINE Phosphite (K) 1,5 l/ha + ECOLINE Magnesium (Chelates) 2,0 l/ha			
	After flowering	Nuts formation	End of fruiting After fruiting		

ECOORGANIC special fertilizers that are suitable for use in organic agriculture in accordance with the Standard of Accredited Certification Bodies for Organic Production and Processing, which is equivalent to the regulations of the European Union № 834/2007 and 889/2008:

**ECOLINE Boron (*Organic*)**

**ECOLINE Boron (*Opti*)**

**ECOLINE Manganese (*Chelate*)**

**ECOLINE Copper (*Chelate*)**

**ECOLINE Zinc (*Chelate*)**

**ECOLINE Iron (*Chelate*)**

**ECOLINE Calcium-Boron (*Chelates*)**



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**WE KNOW THE LANGUAGE OF THE PLANTS!**

ECOORGANIC LLC

26 Lesia Ukrainka Boulevard, office 902, Kyiv 01133, Ukraine  
Tel: +38 044 284 22 80

[info@ecoorganic.ua](mailto:info@ecoorganic.ua)

[www.ecoorganic.ua](http://www.ecoorganic.ua)