

# MICRONUTRIENT MIXTURES

S

Mo

Cu

B

Mn

Zn

Fe

Mg

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# MICRONUTRIENT MIXTURES

Micronutrient mixtures are the ally of every crop since they provide all the necessary for the crop micronutrients and prevent completely micronutrient deficiencies. In some cases they are also used for the correction of the deficiencies. Trace elements mixtures offer all the nutrients in a readily assimilated by the plants form, so plants have a stable source of micronutrients available throughout the growing season.

Mineral nutrients are divided in macronutrients (N, P, K, Ca, Mg, S) and micronutrients or trace elements (Fe, Zn, Mn, Cu, B, Mo). This separation is based on the fact that macronutrients are required in large amounts for the nutrition of the plants while micronutrients are needed in very small quantities compared to macronutrients. The nutrients contained in the micronutrient mixtures are very important in the growth of plants and each one of them has a special role.

- Iron is necessary for the chlorophyll formation and consequently for the process of photosynthesis.
- Manganese has a major part in various enzyme systems concerning respiration and photosynthesis. It is also necessary for the formation of chloroplasts. It assists in the carbohydrates decomposition and the nitrogen metabolism. It contributes to the synthesis of riboflavin, ascorbic acid and carotene.
- Copper is required in order for important plant functions such as amino acids creation, protein synthesis and respiration to be accomplished. Copper enrolls in micronutrients and is very important for the formation of lignin in the plant cells. Lignin fortifies the structure of cells, affects the flavour and the shelf life of the fruits as well as their content in sugars.
- Zinc is a basic element for the production of energy, the synthesis of proteins and the regulation of the growth. It assists in the formation of chlorophyll and carbohydrates. It is involved in the production of auxins which promote plant growth and starch formation.
- Boron is involved in the operation of respiration, pollination, water uptake as well as the activity of cell membrane. Secondary properties of Boron concern its implication in sugars transportation, cell divisions and synthesis of some enzymes.
- Molybdenum is involved in the fixation of atmospheric nitrogen by the nodules of legumes. Furthermore, it is essential for the production of a large number of enzymes.
- Magnesium is a macronutrient and is necessary to the plants since it is a component of chlorophyll. It contributes in the ATP (Adenosine-Tri-Phosphorus) production through its part as a cofactor. It is involved in the sugar synthesis and the starch transportation.
- Sulphur belongs in macronutrients and is a structural component of some amino acids and vitamins. It takes part in the formation of chloroplasts and activates enzyme systems as well.

Through the systematic application of micronutrient mixtures we provide the essential nutrients to the crops achieving an integrated nutrition that leads to increased yields of the plants. Plant growth is stimulated while the defence of the plants is fortified against stress caused by environmental and biotic factors. The integrated nutrient uptake by the plants prevents deficiencies, corrects the existing shortages of micronutrients and contributes to the increased vigour and high productivity of the plants in all crops.

# Elem-Mix

**Elem-Mix** is a mixture of micronutrients for the prevention and in some cases the treatment of nutrient deficiencies in all plants. It contains Iron (Fe), Zinc (Zn), Manganese (Mn), Magnesium (MgO), Boron (B), Copper (Cu), Molybdenum (Mo) and Sulphur (S) derived from complex chelated compounds (chelating agent EDTA) and mineral salts. **Elem-Mix** is totally water soluble and is recommended for foliar and soil applications.



Synthesis	
Iron	4%
Zinc	4%
Magnesium	2%
Manganese	3%
Boron	1.5%
Copper	0.5%
Molybdenum	0.005%
Sulphur	1.65%

# Combi-Mix

**Combi-Mix** contains micronutrients that prevent and in some cases correct nutrient deficiencies in many plants. It contains Iron (Fe), Zinc (Zn), Manganese (Mn), Magnesium (MgO), Boron (B), Copper (Cu), and Molybdenum (Mo). All the above elements are derived from complex chelated compounds (chelating agent EDTA) and mineral salts. **Combi-Mix** is fully water soluble and is recommended for both foliar and soil applications in all crops. **Combi-Mix** is necessary for securing good health and high yields in intensive cropping.



Synthesis	
Iron	4.10%
Zinc	1.40%
Magnesium	4.60%
Manganese	3.80%
Boron	0.65%
Copper	1.30%
Molybdenum	0.07%

## APPLICATION METHODS - TIMING

**Foliar application:** Foliar application is recommended for the quick correction of deficiencies. In case that phytotoxic problems such as burns appear after the foliar application on very sensitive crops, continue with soil application. In order to achieve maximum benefits, foliar applications should start at the beginning of the growing season when there is sufficient foliage to absorb the spray. In case of severe deficiencies, applications must be repeated every 7-14 days. When it is applied foliarly on its own, it is recommended to add a sticking agent in the solution.

**Soil application:** Dissolve in an appropriate amount of water and apply through the irrigation/fertilization system or as a course low pressure sprayer. Apply to the soil near the plants and the tree trunks. For increased uptake of the nutrients, hoe and irrigate carefully right after every application.

CROP	FOLIAR APPLICATION	SOIL APPLICATION
VEGETABLES	1-4 kg/ha	4-8 kg/ha
CEREALS	1-2 kg/ha	
FRUIT TREES & BUSHES	1-5 kg/ha	4-10 kg/ha
ORNAMENTALS	0.5-4 kg/ha	2-10 kg/ha

Dilution rate for foliar sprays: 1-2 g pel liter of water

Rates should be regulated according to the age of the plant, the variety of the plant, the type of the soil and other local conditions. Follow the instructions written on the label of the product.

# Dia-MIX

**Dia-Mix** is a mixture of mineral nutrients-amino acids that targets in the enhancement of the plant growth, the coverage of the plants needs in micronutrients and the correction of micronutrient deficiencies in all crops. It contains Iron (Fe), Zinc (Zn), Manganese (Mn), Boron (B), Copper (Cu) and Molybdenum (Mo) all derived from complex chelated compounds (chelating agent EDTA) and mineral salts. Furthermore, it is very rich in amino acids which increase the penetration of micronutrients in plant cells and organic nitrogen which promotes the overall growth of the plants. **Dia-Mix** is totally water soluble and is recommended for foliar and soil applications.

## PROPERTIES

The application of **Dia-Mix** on the plants achieves the following results:

- Quick coverage of the nutritional needs of plants in secondary nutrients.
- Increase of the readily available to the plants nitrogen in their critical growth stages.
- Acceleration of the biochemical processes that take place inside the plants (sugar formation, photosynthesis).
- High nutrient uptake due to the contained in the product amino acids.
- Enhanced micronutrient assimilation by the foliage due to the sticking properties of the product.
- Increase of the soil's capacity to retain nutrients.

The organic nitrogen contained in **Dia-Mix** is released immediately since it comes from amino acids and provides plants the nitrogen that they need for their growth. Nitrogen promotes plant growth in all stages of the growing season. **Dia-Mix** is produced by raw materials which are organic certified and therefore **Dia-Mix** can be used both in the conventional and organic cropping. The product contains amino acids which increase the nutrient assimilation by the plants. The use of **Dia-Mix** in an integrated nutritional program for the crops prevents nutrient deficiencies and corrects the already established ones.

## SYNTHESIS

Nitrogen (N) .....	3.5 %
Organic N .....	3.5 %
Iron (Fe) .....	4.0 %
Zinc (Zn) .....	3.0 %
Manganese (Mn) .....	2.0 %
Boron (B) .....	1.0 %
Copper (Cu) .....	0.5 %
Molybdenum (Mo) .....	0.04 %
Amino acids .....	21.0 %



Organic certified



CROP	FOLIAR APPLICATION	SOIL APPLICATION
OPEN FIELD VEGETABLES	1-1.5 kg/ha	5-10 kg/ha
CEREALS	0.5-1 kg/ha	
VINEYARDS	1-2 kg/ha	4-10 kg/ha
FRUIT TRESS (APPLES, PEARS)	1-2.5 kg/ha	4-10 kg/ha
BUSHES (STRAWBERRIES, BLUEBERRIES)	1-2 kg/ha	4-10 kg/ha
GREENHOUSE VEGETABLES	1-2 kg/ha	5-10 kg/ha
ORNAMENTALS	0.5-1 kg/ha	2-10 kg/ha
Dilution rate for foliar sprays: 1 g per liter of water		