



# EDAGUM<sup>®</sup>M

NATURAL HUMIC FERTILIZER





# Edagum<sup>®</sup>SM is biologically

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**LIST OF SCIENTIFIC-RESEARCH INSTITUTIONS,  
CONFIRMED EFFECTIVENESS OF EDAGUM®SM**

- Don State Agrarian University (Russia) – wheat
- Ryazan State Agricultural Academy n. a. Pr. P. A. Kostychev (Russia)– wheat, potatoes, cuttings
- State scientific establishment the All-Russia Research Institute of Rice (Krasnodar)– rice
- All-Russia Research Institute Potatoes n. a. A. G. Lorkh (Ryazan) - potatoes
- All-Russia Research and Technology Institute of Rape (Lipetsk) – rape
- Research Institute of Oil-Producing Crops n. a. V. S. Pustovoit (Russia, Krasnodar)- sunflower
- Moscow State University n. a. M. V. Lomonosov (Russia) - composition studies, soil, wheat
- Russian Research Institute of Agricultural Microbiology of the Russian Agricultural Academy (Saint-Petersburg) – microbiological composition studies, soil, tomato, zucchini, black currant, flowers
- Institute of Grain Crops. Kalinenko, (Zernograd, Russia) – wheat
- Research Institute of Horticulture and Viticulture, (Krasnodar, Russia) – grape, peach
- The Kursk State Agricultural Academy named after prof. I. I. Ivanov (Russia) – wheat
- State Pedagogical University n. a. L. N. Tolstoy, Tula (Russia) – composition studies
- All-Russia Research Institute of Sheep and Goat Industry (Stavropol) - fodder grass
- Scientific Research Institute of Agriculture n. a. P. P. Lukyanenko (Krasnodar, Russia) – wheat
- Research Institute of Gardening n. a. I. V. Michurin (Michurinsk, Russia) – apples trees
- Stavropol Scientific Research Institute of Animal Industries and Fodder Production (Russia) - fodder grass
- Research Institute of Agriculture, Turkmen Agricultural University n. a. S. A. Niyazov - cotton, wheat
- Research Institute of Deserts of the Academy of Sciences of Turkmenistan - cotton, wheat
- Uzbek Research Institute of Genetics and Experimental Biology of Plants (Tashkent) – wheat
- Uzbek Cotton Research Institute (Surkhandarya branch) - cotton
- Uzbek Cotton Research Institute (Namangan branch) - cotton
- Uzbek Institute of Plant Protection (Kokand branch) - cotton, wheat
- Uzbek Research Institute of Cotton Breeding & Seedage – cotton
- Uzbek Scientific Research Institute of Rice (Tashkent) - rice
- Research Institute of vegetables, melons, gourds and potato (Uzbekistan) – tomatoes
- Kazakh Research Institute of Soil Science and Agricultural Chemistry n. a. U. U. Uspanov – rice, cotton, grain maize
- State Design and Technology Institute of soil fertility in Cherkassk (Ukraine) – potatoes, soybean
- The Argentine National Institute of Agricultural Tehnology ( INTA) – soybean, grain maize
- Institute of Scientific & Industrial Research (India, Shriram) - potatoes, eggplants
- Research Institute of Agriculture of Abkhazia - kiwi, peaches
- Institute of Botany, Baku, Azerbaijan –wheat
- Baku State University, Azerbaijan - wheat
- Islamic Azad University, the city of Ardabil (Iran) – wheat
- Faculty of Agriculture of Tabriz University (Iran) - wheat



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## **PEAT-BASED HUMIC FERTILIZER "EDAGUM®SM"**

### **NATURAL GROWTH & DEVELOPMENT STIMULATOR WITH ANTISTRESS, IMMUNOMODULATING AND ADAPTOGENIC PROPERTIES**

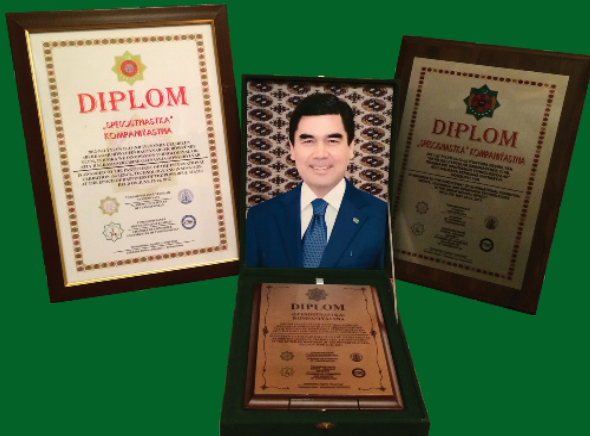
Modern intensive agricultural techniques means, from one hand - producing stable high crop yields, improving yield properties and decreasing its costs, and from another - saving and preserving soil fertility and its properties. One of the modern variants of low-cost and highly effective techniques is based on the new generation of the fertilizers - humic products. The use of these substances allows to minimize operations costs - mainly due to both small dose of fertilizer, that are required for stable positive effect on the plants, and its low working concentration (from 0,005 to 0,01%).

The rate of humic treatments use has grown tremendously in the last 15 years. Humic preparations are involved into the common agricultural techniques, like the mineral fertilizer and agrochemicals in the USA, Canada, Japan, China, India, countries of the EU and Middle East, and in the last decade in Russian, Ukraine and countries in the Central Asia.

Humic fertilizer "**EDAGUM®SM**" is natural regulator of plants growth and development. Science intensive technology of "**EDAGUM®SM**" producing (know-how of manufacturer) allows to extract and preserve a whole complex of biologically active substances, created by nature: humic and fulvic acids, macro- and microelements in bioavailable organic forms and complex of useful microorganisms. Due to the high concentration of mentioned components product possesses unique biological activity and wide range of actions, that allows to decrease the application rate in comparison with another humic preparation and minimize storage and transport costs.

"**EDAGUM®SM**" passed official tests and was registered by Russian Agriculture Ministry in 2006. It was recognized as a ecologically safe preparation, harmless both for humans and wildlife by International ecological fund.

The high efficiency of the fertilizer "**EDAGUM®SM**" was confirmed by 34 specialized research institutes and has been applied since 2006 in Russia, Ukraine, Serbia, Hungary, Kazakhstan, Uzbekistan, Turkmenistan, Iran, Azerbaijan, India, China, Mongolia, Argentina and other countries. Since 2010 by the decision of the Cabinet of Ministers of Turkmenistan "**EDAGUM®SM**" has been massively used on all major crops, supervised by the state: wheat, cotton, rice. Our company was awarded the honorary diploma for the outstanding contribution to the development of agriculture in Turkmenistan at the 2012 innovation exhibition in Ashgabat, conducted by the Science Academy and the Chamber of Commerce of Turkmenistan. For its unique composition and high quality, fertilizer EDAGUM®SM was awarded 7 gold medals and more than 30 diplomas from both Russian and foreign agricultural exhibitions from 2006 to the present.



#### **MANUFACTURER:**

"**EDAGUM SM RUS**" LLC, specializations - engineering and manufacturing of humic products for application in farming, ecological tasks and oil industries. It is a largest humic products manufacturer in Russian Federation.

#### **COMPOSITION:**

"**EDAGUM®SM**" consists of:

- high concentration (up to 40-50 grams per liter) of humic and fulvic acids, that possess positive complex action on the plants;
- a range of components like aminoacids, carbon acids, vitamins etc., that are available for plants immediately after seeds germinations;
- a complex of macro and microelements, inevitable for plant development; these component is contained in





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plant- available form;

- a complex of useful microorganisms, preserved from peat in active forms, capable to improve processes of plant nutrition and humification – aggregations of ammonifying, amylolytic, denitrifying and other bacteria synthesizing enzymes and plant growth stimulants.

Evaluation of phytohormonal activity in plant tests showed a high content of plant growth and development natural stimulants - phytohormones - auxins (b-indoleacetic acid), gibberellins (gibberellic acid), cytokines and B vitamins synthesized by bacteria, namely thiamine, niacin (nicotinic acid) and pyridoxine.

### PECULIARITIES OF APPLICATION:

**EDAGUM®SM** can be applied on every soil type, including salined, alkaline and especially low fertile sandy soil, poor in organic matter. Fertilizer can be used on all plant growth stages - from preplanting seed treatment to after-harvest soil operations. Besides, fertilizer application in “organic farming” is also possible.

The application of the **EDAGUM®SM** product can be combined with a common agricultural system and does not require additional expenses for its application. Can be applied either independently or simultaneously with different kind of mineral fertilizers and agrochemicals.

**EDAGUM®SM** is an **eco-friendly** product, safe for human. Due to its peculiarities (see below), it can be efficiently applied in **organic farming**.

### Humic fertilizer “EDAGUM®SM” is available in two modifications:

- **liquid preparation** - without ballast compounds, completely soluble in water and appropriate for every type of watering systems (fine-dispersed and drop watering systems as well);
- **in a paste form** of a residual peat compounds, appropriate for manual watering systems (water solubility 95% to 97%) and placing under the roots.

**ATTENTION!** Preparation must be used only in form of dissolved (working) solution. Application of the plants during vegetation require working solution with the average proportions: 400 milliliters of “EDAGUM®SM” per 50-300 liters of water for 1 hectare for every treatment.

### EFFECTS: EDAGUM®SM IS ABLE

- to increase the yields of various cultures from 10-30 % (grain, cotton), up to 40-50 % and even more (a potato, vegetable, melons etc.);
- to reduce application rate of mineral fertilizers by 20-50%, pesticides by 20-40%, simultaneously humiliating pesticides-caused stress effects;
- to increase plant sustainability to diseases, caused by viruses and harmful microorganisms;
- to stimulate plant sustainability to unfavorable environment effects (like draught, frost, surplus wetting etc.);
- to activate development of the root system of plants and their respiration rate;
- to raise seedling and seeds survival rate;
- to accelerate the maturation of the harvest up to 10-12 days;
- to improve productions quality - for instance, to raise the content of vitamins, proteins, sugar etc.
- to produce pollution-free products - to reduce the content of nitrate nitrogen, radionuclides and pesticides residues in production;
- to keep the products safe while transporting and storing;
- to raise the water retention abilities of sandy soils by 20-30%;
- to increase the soil fertility by renewing soil microbiological complex;
- to bound heavy metals, radionuclide and remains of pesticides in soil, forming the insoluble complexes, unavailable for plants, subsoil waters and atmosphere.

Therefore the “EDAGUM®SM” applications allows to reach colossal economical effects: not only the yields raises on 10-50% and even more after its application, but in the same time the rates of chemicals and mineral fertilizer may be reduced on 15-50%. Moreover, its application allows to restore and improve soil fertility and, thus, to obtain ecologically safe production of the higher quality!



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On the nation-wide scale the application of “EDAGUM<sup>®</sup>SM” may solve food problems and improve the population health!

## MICROBIOLOGICAL STUDIES

Russian Research Institute of Agricultural Microbiology of Russian Agricultural Academy (the city of Saint-Petersburg)

The research of biological characteristics of humic fertilizer EDAGUM<sup>®</sup>SM conducted by scientists of the Russian Research Institute of Agricultural Microbiology of the Russian Agricultural Academy (Saint-Petersburg), and its practical application in the farms have confirmed highly efficient effects of the fertilizer on soil characteristics and the ability to stimulate plant growth and development due to the large number of physiological groups of microorganisms contained in the fertilizer (according to the morphological characteristics there are up to 15 species of beneficial bacteria).

Ammonifying bacteria ( $10^5$ - $10^6$  CFU/ml) hold a dominant position, many of them are growth factors that produce auxins involved in the nitrogen mineralization, which leads to the release of ammonia, that is actively involved in soil-plant processes. The group of amylolytic microorganisms ( $62 \times 10^6$  CFU/mL) includes a bacterial flora that use mineral compounds of nitrogen and actinomycetes that can stimulate the growth and development of plants.

The analysis of denitrifying bacteria, involved in the microbiological process of nitrate reduction to the molecular nitrogen, has showed their high content in the product -  $2 \times 10^4$  CFU/ml. It was found that the application of a solution of humic fertilizer EDAGUM<sup>®</sup>SM, a natural microbe-humate complex, to the soil, improves the nutrition regime of plants. It increases the activity of microorganisms – the breathing increases by 28.8%, which accelerates the decomposition of organic nitrogen and phosphorus compounds and makes them available to plants. The plant nutrition improves due to the product itself: the number of mobile forms of nitrogen increases in the soil by 7.4%, and phosphorus and potassium by 22.0% and 10.5% respectively, thus reducing the rate of application of mineral fertilizers.

## EDAGUM<sup>®</sup>SM AND ORGANIC FERTILIZERS OF ANIMAL ORIGIN

The comparative analysis of the IR spectra of humic substances extracted from the EDAGUM<sup>®</sup>SM fertilizer and cow manure of 4-year curing time has showed their complete identity of the nature of the functional groups. However, humic acids extracted from EDAGUM<sup>®</sup>SM contain many carboxyl and phenolic groups, amines, responsible for the physiological activity. The content of humic substances in EDAGUM<sup>®</sup>SM is two times larger than in manure. Furthermore, humic substances of manure, unlike EDAGUM<sup>®</sup>SM, scarcely contain a water-soluble fraction - fulvic acids, that are based on amino acids, sugars (glucose, galactose, mannose, xylose) and water soluble carboxylic acids (oxalic, succinic, methylsuccinic, citric, fumaric, salicylic, benzoic and malic acids), that are biologically active and extremely important for seed germination and further plant growth.

The biological testing has shown that the biological activity of humic substances in EDAGUM<sup>®</sup>SM three to four times higher than in the manure. It's important that EDAGUM<sup>®</sup>SM lacks some shortcomings of manure because it contains no weed seeds, helminth eggs, pathogenic microflora, and it is more producible.

The studies conducted in 2015 by the Soil Chemistry Chair of the Soil Sciences Faculty of the Lomonosov Moscow State University about the effectiveness of EDAGUM<sup>®</sup>SM compared with traditional organic fertilizers of animal origin (cattle manure of 2-year curing time) applied to wheat, have showed that the effect of application of 1 liter of EDAGUM<sup>®</sup>SM to 1 hectare of arable land and seed treatment before sowing is equivalent to the treatment of 9-10 tons of manure and gives a yield increase of 31.5%. Furthermore, EDAGUM<sup>®</sup>SM has a positive complex influence on the physical properties of soil and its structure. During the observation period the influence of the product resulted in an increase in the total (14.5%) and inter-aggregate (24%) porosity of the soil; reduction in soil bulk density (12.5%); acceleration of the speed of soil moisture (filtration coefficient increased by 23%); the amount of water-resistant and agronomically valuable aggregates in soil increased by 4%. Thus, EDAGUM<sup>®</sup>SM improves the physical, biological and agronomic indicators of soil, while being an environmentally friendly product.





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### MAIN ADVANTAGES OF THE “EDAGUM<sup>®</sup>SM” FERTILIZER:

Due to the unique composition, “EDAGUM<sup>®</sup>SM” possesses a higher biological activity, in comparison with other humic products (including coal-based); therefore, its application makes it possible to obtain greater results with lower applications rates. This is because the fertilizer not only contains a large amount of humic and fulvic acids, but the number of active forms of beneficial microorganisms is sufficiently high.

Agrochemists call fulvic acids “mother’s milk”, because they are based on amino acids, carbohydrates, water-soluble carboxylic acids (succinic, fumaric, citric, etc.), which is a breeding ground for the root system of plants. With a low molecular weight, fulvic acids easily penetrate the cell membrane and facilitate the flow of nutrients to plants. So the effect of the product begins immediately after its application: the seed vigor increases, a strong root system begins to develop, which is very important for arid countries.

Humic acids with a much heavier molecular weight, have an later effect: in the period of flowering and appearance of the ovaries - after hydrolytic cleavage to a low-molecular level and the appearance of the ability to penetrate into the plant cell.

Unlike common humic fertilizers, “EDAGUM<sup>®</sup>SM” is a treatment of the long-term action that influences on the plants from seed germination up to the harvesting.

The fertilizer’s microflora complex is appropriate for every soil type and cannot destroy or somehow damage ecological balance of agrocoenosis. Besides, it possesses remarkable antibacterial and fungicide properties and protects the plants from different kind of diseases. When applied to soil, “EDAGUM<sup>®</sup>SM” acts as a natural biopreparation, activator of soil microflora and:

- substantially increases the number of aggregations of soil microorganisms - ammonifying, amylolytic and denitrifying bacteria, and accordingly, phytohormones and growth stimulants - auxins, cytokinins, gibberellins, etc .;
- increases respiration of soil microorganisms, i.e. their activity;
- increases the content and availability of nutrients in the soil: ammonia nitrogen, mobile phosphorus and potassium.

Thus “EDAGUM<sup>®</sup>SM” is not only humic, but a microbiological preparation as well, i.e. a double-role preparation, that exceeds in its actions both common humic fertilizer and special microbiological preparations.

### RESULTS OF “EDAGUM<sup>®</sup>SM” APPLICATION

Highly effectiveness of the fertilizer “EDAGUM<sup>®</sup>SM” is proved by the long practice of its application both in different agricultural enterprises and in both Russian and foreign institutions.

#### WHEAT

Experiments on the winter wheat were conducted by the Don State Agrarian University, PC “Mayak”, LLCs “Agrosoyuz-Kuban” and “Finance-Agro”, farms “Chigarevo” and “Malishev” (Russian Federation); Institute of agriculture - department of University of Farming (Turkmenistan); Scientific Research Institute of genetics and experimental biology (Uzbekistan); Lukyanenko Research Institute of Agriculture in Krasnodar. Humic fertilizer “EDAGUM<sup>®</sup>SM” was found out not only to increase the yield of wheat (up to the 29% and even more), that was obtained by increasing the weight of 1000 grains (more than on 3%), increasing weight of wheat ear (more than on 9%), but also to improve the yield quality - for instance, a gluten content were raised (more than on 4%) and the growth rate was accelerated.

The tests carried out on 12 genotypes of wheat in 2008-2010 by experts of the Islamic Azad University, the city of Ardabil, Iran and the Faculty of Agriculture of Tabriz University, Iran, also confirm the high efficacy of the product in drought conditions. In addition, EDAGUM<sup>®</sup>SM improved tolerance to the stress caused by draught by 12-20%, its application increased the weight of 1000 grains, increased the economic and biological yield by 0.7 and 1.6 t/ha, respectively.

The application of EDAGUM<sup>®</sup>SM on the black earth in the Tambov region (farms of the public limited companies “Zolotaya Niva” and “Stepnoye Gnezdo”) resulted in spring wheat yield increase of 12.9 to 15.5%, winter wheat yield increase ranged from 20.1 to 26.4% compared with the control.



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In 2008 “FINANSAGRO”, LLC tested the **EDAGUM<sup>®</sup>SM** fertilizer on crops of spring wheat (variety Duet, seed treatment with 40 ml per 100 kg and **1 treatment in the growing season** in amount of 400 ml/ha in the tillering stage and leaf-tube formation) in the **Uysk district of the Chelyabinsk region**. The yield increase was **18.4%**, gluten content increased by **2.7%**.

“Logos Grain”, LLP (**Kazakhstan, the Akmola region**) - In 2015 it carried out production experiments to study the effect of the **EDAGUM<sup>®</sup>SM** fertilizer on crop yields of spring wheat under the following scheme: presowing seed treatment of 50 ml per 100 kg and **1 treatment in the growing season** of 500 ml/ha in the tillering stage and leaf-tube formation. As a result of the application, the field germination increased, as well as the plant growth and development. Spring wheat yield was 20.6 ql/ha (control - 18.5 ql/ha), or **increased by 11.4%**.

### BARLEY

The experience of farms “Chigarevo”, “Malyshev” and LLC “Agrosoyuz-Kuban” (Russian Federation) evidently shows a high effect of the application of “**EDAGUM<sup>®</sup>SM**” on the barley. The yield exceeds the control level by **18%**; moreover, quality of the treated yield was higher.

Barley yield in the **Tambov region** (farms of the public limited companies “Zolotaya Niva” and “Stepnoye Gnezdo”), treated with **EDAGUM<sup>®</sup>SM**, increased by **25.3-30.2%**.

### RICE

The effect of application of the “**EDAGUM<sup>®</sup>SM**” on the rice was investigated by **State Science Founding of the Rice Scientific Research Institute and LLC “Slavyanskaya” (Russian Federation); Rice Scientific Research Institute (Tashkent and Horezm districts of Uzbekistan)**. After the application the vigor of germination was higher, germination ability raised by 8%, stem and panicles was longer on more than 18% and 12% accordingly, roots length was increased considerably, the mass of seedlings was higher and the grains size was larger (weight of the 1000 grains was increased on 5%). The rate of plants growth was also higher, that made harvesting possible on 5-6 days earlier. **Amount of plants with blast disease was minimal**. Besides, treated plants had lower liability to layering and well developed side stems. Thus, a **rice yield was higher by 27%** and its quantity was also higher in comparison with check plot (with mineral fertilizer only).

Field and production experiments of the **EDAGUM<sup>®</sup>SM** application in the south and south-east of the **Balkhash region of Kazakhstan** have showed that **only after the pre-sowing seed treatment the rice yield increased by 15.5%**.

### MAIZE

Maize is also a responsive culture for application of the “**EDAGUM<sup>®</sup>SM**” fertilizer. The yield of this culture **increased by more than 13%**, as it was shown in experiments, conducted in the farms “Zhuchenko” and “Panin I.A.”, CC “Kolos”, Federal State Unitary Enterprise of rice growing and selection “Krasnoarmeyskij” (Russian Federation).

Production tests of **EDAGUM<sup>®</sup>SM** on maize corps in the south and south-east of Kazakhstan (the **Enbekshi-Kazakh district**) with a single spraying of vegetating plants have showed that maize yields increased by **10.8%**.

### COTTON

In the experiments, conducted by **Scientific research Institute of agriculture - department of University of Farming (Turkmenistan); Surkhandarinsky and Namangansky branch offices of Scientific research Institute of Cotton, Kokandsky branch offices of Scientific research Institute of Plant Protection, Scientific research Institute of Cotton Selection and Seed Farming and farm “Munis Mukarra” (Uzbekistan)**, “**EDAGUM<sup>®</sup>SM**” is reported to bring excellent results - it increased the yield of cotton by **more than 24%**. This high result is a consequence of the following: higher thickness of plants stand (more than 3 thousand plants as a difference in comparison with check plot), bigger total number and number of open plant boxes per plant, increased plant boxes weight (on 1,5 gram and more), enlarged plants size (more than on 10-11 cm). Besides, cotton plants had **lower**





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liability to diseases (wilt, for instance) and longer grains. During the production tests in farms in the **Maktaaral region of Kazakhstan**, the two-time spraying with the **EDAGUM®SM** solution was an effective agronomic technique - **increase in the yield of cotton made 43%** in comparison with the control.

### SUNFLOWER

Experiments with application of "**EDAGUM®SM**" on the sunflower, conducted in the **State Science Founding of the Oil-bearing Crops Scientific Research Institute, PC "Druzhba", CC "Agrico AM" and LLC "Agrosoyuz-Kuban" (Russian Federation)** showed the yield to increase on **more than 21%** (in comparison with check plots), that was obtained by increased number of seeds in the heads (more than on 40 seeds per head), seed weight (more than on 1,5 tons per hectare) and more intensive plants oil forming capability.

### RAPE

The rape also positively reacts on the application of the fertilizer too. The experiment, conducted by the **Russian Scientific Research Institute of Rape Plants (Russian Federation)** has shown, that the application of "**EDAGUM®SM**" allows to increase productivity of this culture by **more than 12%**, even despite unfavorable weather conditions. The higher yields were obtained as a result of the positive effect of the humic fertilizer on the processes of pods and seeds growth - every plant on the test plots had a 2-3 additional pods and the seeds weight grew by 0,05-0,08 grams (in comparison with the control).

### SOYBEANS

Remarkable results were achieved on soybeans. As it was shown by **LLC "Agrosoyuz-Kuban" (Russian Federation)**, the **yield increase was more than 39%**.

In 2010 the **State Design and Technology Institute of soil fertility in Cherkassk (Ukraine)** carried out production tests of **EDAGUM®SM** on soybeans (the Verskla variety). The **yield increase was 7.0 q/ha, or 36.5%** in comparison with the control.

During the production tests on the application of **EDAGUM®SM** in 2014-2015, scientists of the **Argentine National Institute of Agricultural Technology (INTA)** revealed high efficacy of the product on soya crops - soybeans obtained yield increase of up to **1281 kg/ha, or 33.7%**. In addition, one experiment resulted in the yield increase of **815 kg/ha or 21.5%** with the **reduction of mineral fertilizers of 20%**.

### POTATOES

The high effectiveness of **EDAGUM®SM** was proved by experiments on the potatoes. According to the results of the **Lorch Russian Scientific Research Institute of Potato Farming (Russian Federation)**, application of the fertilizer increases the **yields by up to the 24%** (in comparison with check plots), amount of dry substance increases on 11-25 centner per hectare, starch - on 7-12 centner per hectare, vitamin C - on 6-10 kilograms per hectare, **content of nitrates decreases by 35 milligrams per kilogram**. Additionally, **commercial fraction of the yield also increases**. At **Cherkassy State Design-Technological Institute of the Land Fertility (UKRAINE)** in 2010, when conducting field tests of the fertilizer **EDAGUM®SM** on Veneto and Darina potato races the increase amounted to **30.7 t/ha and 22.9 t/ha or 19% and 16%**, respectively. The **Institute of scientific and industrial research, (India, G. Sriram)** in 2012 conducted research of **EDAGUM®SM** at cultivation of potato. The experimental design: treatment of tubers (100 ml/30l of water) + 2 treatments on vegetation (400 ml/ha). **Increase of a crop of potatoes amounted to 1739 kg, or 18.7%**, compared with the control.

### TOMATOES

Humic preparation **EDAGUM®SM** has proven its effectiveness on tomatoes as well. In the experiments of the **Research Institute of vegetables, melons, gourds and potato (Uzbekistan)** it was shown that the rational use of the preparation allows to obtain a yield increase to **34%** (or more, relative to the control), which is achieved by increasing plant growth, the number of lateral stems and **the number of fruits (more than by half)**.



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## EGGPLANTS

Specialists of the **Institute of scientific and industrial research, (India, G. Sriram)** in 2012 conducted a field test of fertilizer **EDAGUM<sup>®</sup>SM** at cultivation of eggplants. The increase of the yield of eggplant while processing **EDAGUM<sup>®</sup>SM** (treatment of seeds + 2 treatments on vegetation) amounted to **21.99%**.

## ONION

Preparation **EDAGUM<sup>®</sup>SM** shows good results in such a culture, like an onion. The experience of application of the preparation at the **peasant farming enterprise “Korytko” (Russia)** shows an **increase in the yield by 13%** and a good compatibility with fungicides.

## GRAPES, PEACHES, KIWI

The use of the preparation in grapes also allows to achieve a significant result. Treatment of vines with the fertilizer **EDAGUM<sup>®</sup>SM**, held at Agro-Innovation LLC, based on the Institute of horticulture and viticulture and the **Institute of agriculture of Abkhazia**, contributed to the **increase of the harvest by 16-23%** and significantly **increased the sugar content (up to 2.5 g/100 cm<sup>3</sup>)**. In addition, the significant impact of the preparation on the kiwi was proved, which ultimately allowed to obtain a harvest, more than **12%** greater than control. Treatment of young peach trees with the fertilizer (3-time spraying) significantly affected the **value and attractiveness of appearance and commodity qualities of fruits of peach**.

## APPLES

Furthermore, the preparation allows to achieve excellent results on apple trees. According to the **state scientific institution all-Russian Research Institute of Horticulture named after I.V. Michurin and Agrico-AM CJSC (Russia)**, compared with the control, the yield of **apple trees increases by up to 30%**, larger well-colored fruits were received, the diameter of which was 3 centimeters more than that of the control; **the plants were less diseased (scab, bitter foveate spot disease)**.

## USE OF EDAGUM<sup>®</sup>SM IN RESOURCE-SAVING TECHNOLOGIES

The innovative resource-saving technology of cultivation of agricultural crops with the use of **EDAGUM<sup>®</sup>SM** based on its unique properties not only as a humic fertilizer but as a natural soil bioactivator was developed by leading agrochemistry scientists of Russia. This technology has been used successfully since 2010 at many farms of the Russian Federation, in order to improve the yield, reduce the cost of agricultural production and restore the ecological parameters and soil fertility.

The application of **EDAGUM<sup>®</sup>SM** into the soil before sowing can significantly reduce non-productive losses of fertilizers and increase the completeness of the use by plants of mineral nutrients. The application of **EDAGUM<sup>®</sup>SM** contributes to the increase in the number of soil microorganisms, enhances the enzymatic activity of the soil, which, in turn, increases the mobility of nutrients in the soil.

The use of **EDAGUM<sup>®</sup>SM** is also effective, when processing crop residues (incorporation of straw). Usually during the winter the straw decomposes by 40-60% (when there is enough moisture in the soil). This technology can be significantly cost-reduced and sped up with the help of the preparation. **EDAGUM<sup>®</sup>SM** makes possible further involvement in the process of destruction of plant residues of specific microorganisms, dramatically reduces unproductive losses of nitrogen, which typically amount to 50-70%, increases the stocks of total carbon and nitrogen, mobile phosphorus and potassium, increases the degree of residues decomposition by up to 80% and more, reducing the need for nitrogen fertilization.

Thus, the use of the preparation significantly alters the conditions of soil nutrition, causing the active strengthening of processes of mobilization of nutrients in digestible form for plants. The soil, where **EDAGUM<sup>®</sup>SM** was applied, is characterized by better conditions of nitrogen and phosphate modes in the accumulation of humus compounds by cutaneous new growth of humic acids.







## *active miracle of nature!*

This:

- enhances the mobility of soil phosphorus;
- strengthens the processes of nitrates generation, increases photochemical nitrogen fixation and availability of soil organic nitrogen to plants;
- accelerates the flow of ammonium and amide forms of nitrogen, phosphorus to the plant, resulting in the observed increase in concentrations of nitrogen and phosphorus in the plant and their removal.

Even a single application of the working solution **EDAGUM<sup>®</sup>SM** into the soil increases the content of nutrients – ammonia nitrogen, mobile phosphorus, potassium, there is increase of breathing of soil microorganisms, i.e. increase of their activity by 28.8%. Transport functions and high capacity of humic substances to penetrate the membrane of plant cells allow to increase the utilization of pesticides, reducing their consumption rate by 10-20%, which also leads to significant savings.

Experience in the production of crops on our technology in the farms of Krasnodar region and Stavropol territory for the last 4 years showed a high economic benefit of application of humic preparation **EDAGUM<sup>®</sup>SM**:

- yield increase by 15-30%;
- reduction of the cost of mineral fertilizers by 20-30% - the rate of ammophos in physical weight is 150 kg/ha, nitrate in physical weight - 300 kg/ha;
- reduction of the cost of plant protection means – by 10-20%.

The research, conducted in 2014 by the scientists of the **Research Institute of Agriculture of Turkmen Agricultural University named after S.A. Niyazov** on cotton crops showed that the use of innovative resource-saving technologies with **EDAGUM<sup>®</sup>SM** allows to get profit of **USD 40.7 per 1 hectare by improving productivity and reducing nitrogen and phosphate fertilizers application rates by 20%, potassium – by 15%**.

Experts of the **Argentine National Institute of Agricultural Technology (INTA)** in 2014-2015, when field testing **EDAGUM<sup>®</sup>SM** at cultivation of soybean applied energy-saving technologies and received **815 kg or 21.5% of the increase in yields while reducing by 20%** the application rates of mineral fertilizers.

In 2014-2015 on the ordinary black soil of Rostov region scientists of **Don State Agrarian University (DonGAU)** on crops of winter wheat modified zonal technology of cultivation: **reduced by 30% the main mineral fertilizer dose, by 10% doses of preparations for plant protection** and supplemented by soil treatment with solution **EDAGUM<sup>®</sup>SM** of dose 2.0 l/ha, pre-sowing treatment of seeds with 0.4 l/t and foliar fertilizing twice with the dose of 0.4 l/ha at tillering and stem elongation. The complex of such methods **increased the yield by 12.9 t/ha or 39.4%** compared with the control and significantly **reduced costs for fertilizers and plant protection products. Of particular note is that resource-saving technology of application of EDAGUM<sup>®</sup>SM with NPK savings by 30% and PPP by 10% was more effective than the traditional scheme with the use of chemicals (100% NPK and PPP) by 7.3% or 2.4 t/ha.**

**OF PARTICULAR NOTE IS THE ECONOMIC EFFECT FROM THE USE OF THE PREPARATION:  
PER USD 1 OF COSTS FOREDAGUM<sup>®</sup>SM FARMERS RECEIVE USD 30-50 PROFIT!**

### **PACKING, TRANSPORTATION AND STORAGE**

Liquid humic fertilizer **EDAGUM<sup>®</sup>SM** is packed in hermetically closed polyethylene bottles under TU 113-08-554, tins under TU 38.1011178, cans under OST 6 19-35, barrels under GOST 22752, net volume 0.5; 1.0; 10.0; 100, 200, 1,000 l. In coordination with the customer the shipment of “**EDAGUM<sup>®</sup>SM**” in tankers is allowed.

Fertilizers, packed in shipping containers, shall be transported in covered vehicles by road and rail with observance of rules of transportation of cargoes, effective for this mean of transport and OST 6 15-90.4., SanPiN 1.2.1077, SP 1.2. 1170-02.

Fertilizers, packed in shipping containers, shall be stored on pallets or racks in warehouses of a closed type, providing protection from exposure to direct sunlight. Storage conditions are according to TU 0392-001-52420467-2005. In the event of freezing of liquid fertilizers, their quality is completely restored after thawing. Shelf life is 5 years. The agronomic period of validity is not limited.

# WHEAT, BARLEY, OATS, RYE

## RECOMMENDATIONS FOR APPLICATION

**Preplanting seed treatment.** It brings to the crop plants the increasing germination capacity and vigor of germination, stimulates processes of plants growth and development, especially on the initial stages.

### Recommended rates:

**400-800 ml** “EDAGUM®SM” + fungicide (if needed) + **10 L** of water for **1 ton** of seeds. For maximum effects a combination of “EDAGUM®SM” with necessary agrochemical preparations (fungicides, pesticides) is advised. Duration of treatment should be found depending local technology.

### Foliar feedings.

#### Recommended scheme during the vegetation period:

**1<sup>st</sup> feeding** – from tillering up to stooling stages: “EDAGUM®SM” + agrochemicals (herbicide, etc) + soluble mineral fertilizer (if needed);

**2<sup>nd</sup> feeding** – from stooling up to milky-wax ripeness depends on the plant condition: “EDAGUM®SM” + agrochemicals (fungicide, insecticide etc).

**NOTE:** For powerful roots system formation, increasing the steadiness for low temperature, layering and for diseases a shoots treatment is recommended.

#### Recommended rates for single treatment:

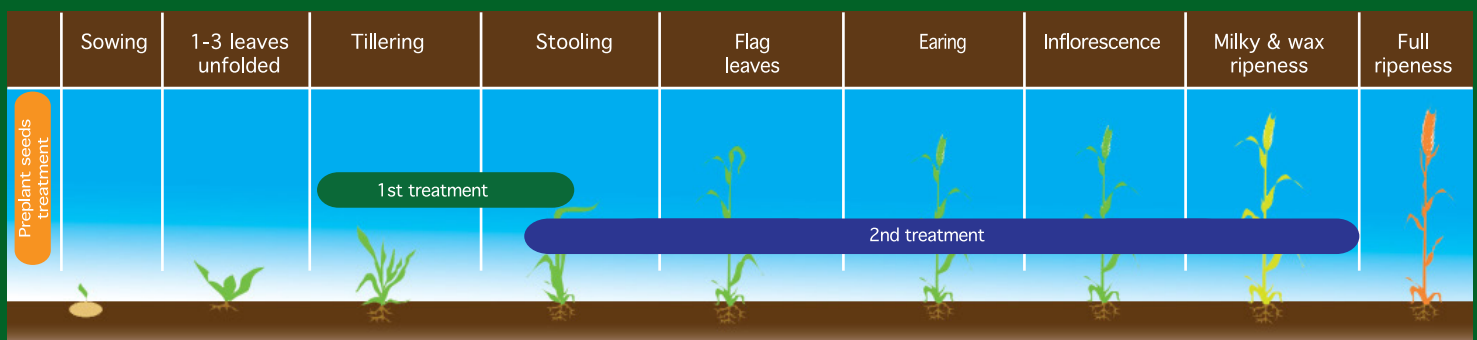
**400-800 ml** “EDAGUM®SM” + **300 L** of water per **1 hectare**.

#### Foliar feedings allows:

- to increase yields on 10-30 % an more;
- to increase plant sustainability to diseases (like root rots, helminthosporium, corn rust etc.) and pesticides side effects on 20-30%;
- to activate development of the root system of plants and their respiration rate;
- to increase the stems amounts, seeds and ears size;
- to raise the content of gluten, and, simultaneously, to reduce the content of nitrate nitrogen, pesticides residues etc. in products;
- to raise efficiency of mineral fertilizers, for instance ammonium nitrate - on 30-50%, pesticides – on 15-20%, and, thereby, to reduce their application rate accordingly;
- to increase plant sustainability to unfavorable environment effects (like draught, frost, surplus wetting etc.);
- to accelerate the maturation of the harvest on a few days.

### ATTENTION!

*It is recommended to conduct a preliminary test in small volume in order to check “EDAGUM®SM” and planned for use chemicals compatibility. Make sure that sedimentation doesn't take place.*





# COTTON

## RECOMMENDATIONS FOR APPLICATION

**Preplanting seed treatment.** Is inevitable for the increasing germination capacity and vigor of germination in a shorter possible times.

### Recommended rates:

**400-800 ml** “EDAGUM®SM” + fungicide (if needed) + **10 L** of water for **1 ton** of seeds. For maximum effects a combination of “EDAGUM®SM” with necessary agrochemical preparations (fungicides, pesticides) is advised. Duration of treatment should be found depending local technology.

### Foliar feedings.

### Recommended scheme during the vegetation period:

**1<sup>st</sup> feeding** – in 2-3 true leaves unfolded stage: “EDAGUM®SM” + agrochemicals (herbicide, etc) + soluble mineral fertilizer (if needed);

**2<sup>nd</sup> feeding** – in flower bud formation stage: “EDAGUM®SM” + agrochemicals (fungicide, insecticide etc).

**3<sup>d</sup> feeding** – in flowering stage: “EDAGUM®SM” + agrochemicals (fungicide, insecticide etc).

### Recommended rates:

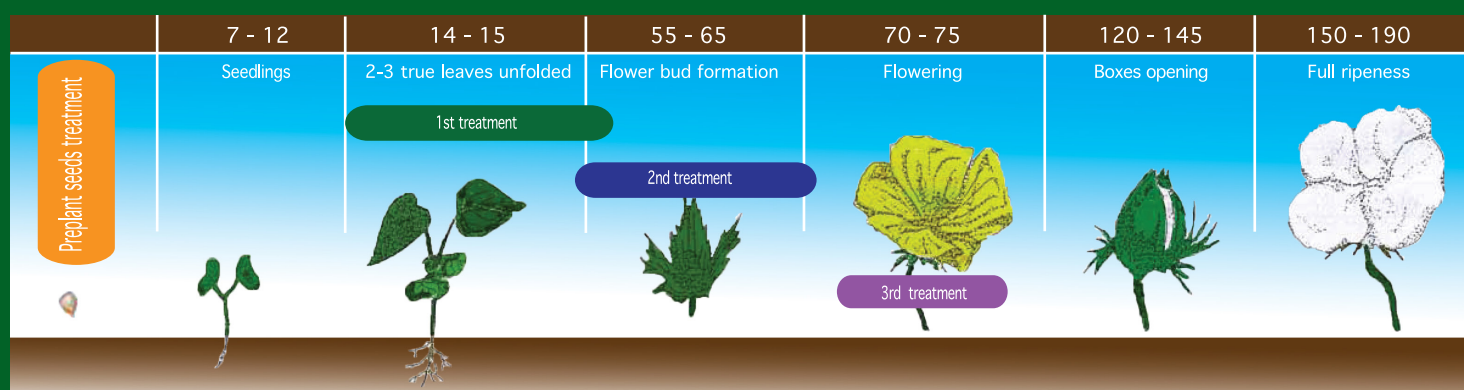
**400-800 ml** “EDAGUM®SM” + **300 L** of water per **1 hectare**.

### Foliar feedings allows:

- to increase yields on 20-30 %;
- to increase plant sustainability to diseases and pesticides side effects;
- to activate development of the plants since the initial stages of growth;
- to increase the efficient side stems amounts and both boxes size and it's opening rates;
- to improve the production quantity – to raise the seeds glassiness and decrease hoodness;
- to reduce the application rate of phosphorous and potassium fertilizer on 20-50%;
- to increase plant sustainability to diseases on 25-30%;
- to accelerate the maturation of the harvest on a few days.

### ATTENTION!

*It is recommended to conduct a preliminary test in small volume in order to check “EDAGUM®SM” and planned for use chemicals compatibility. Make sure that sedimentation doesn't take place.*



# RICE

## RECOMMENDATIONS FOR APPLICATION

**Preplanting seed treatment.** It increases the germination capacity and vigor of germination, humiliates inappropriate weather (and soil moisture) conditions, stimulates processes of plants growth and development, especially on the initial stages.

### Recommended rates:

**400-800 ml “EDAGUM®SM”** + fungicide (if needed) + **10 L** of water for **1 ton** of seeds. For maximum effects a combination of “EDAGUM®SM” with necessary agrochemical preparations (fungicides, pesticides) is advised. Duration of treatment should be found depending local technology.

### Foliar feedings.

#### Recommended scheme during the vegetation period:

**1<sup>st</sup> feeding** - during tillering stage: “EDAGUM®SM” + agrochemicals (herbicide, etc) + soluble mineral fertilizer (if needed);

**2<sup>nd</sup> feeding** – during heading stage: “EDAGUM®SM” + agrochemicals (fungicide, insecticide etc).

### Recommended rates:

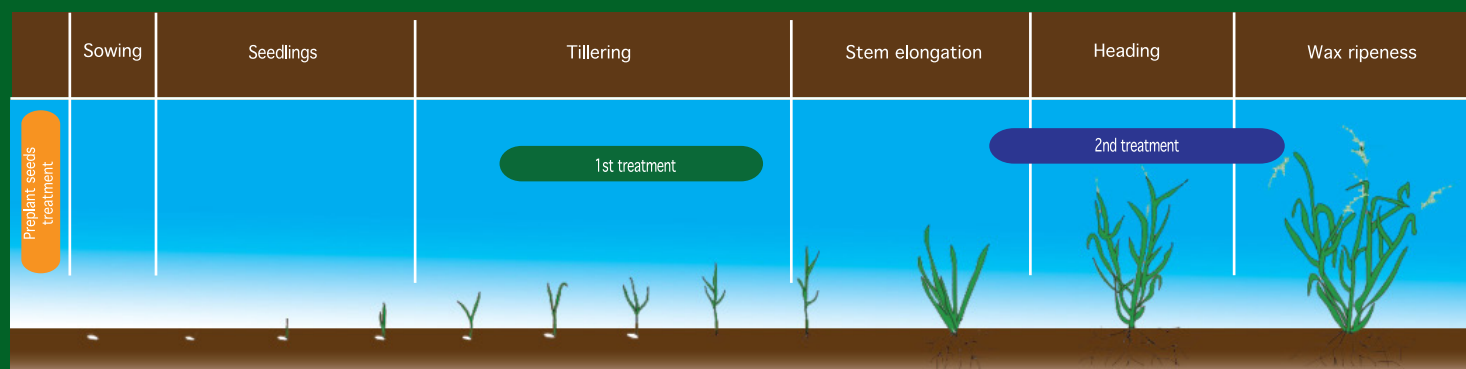
**400-800 ml “EDAGUM®SM”** + **300 L** of water per **1 hectare**.

### Foliar feedings allows:

- to increase yields on 20-25 % an more;
- to increase plant sustainability to diseases and pesticides side effects;
- to activate development of the plants and to reduce effect of inappropriate water layer height;
- to increase the efficient stems amounts and seeds size;
- to improve the production quantity – to raise the seeds glassiness and decrease hoodness;
- o raise efficiency of mineral fertilizers and pesticides, and, thereby, to reduce their application rate - on 15-50%;
- to increase plant sustainability to diseases on 20-30%;
- to accelerate the maturation of the harvest on a 5-6 days.

### ATTENTION!

*It is recommended to conduct a preliminary test in small volume in order to check “EDAGUM®SM” and planned for use chemicals compatibility. Make sure that sedimentation doesn't take place.*





## LEGUMES

### SOYBEAN, PEAS, NUT, BEANS, etc.

#### RECOMMENDATIONS FOR APPLICATION

**Preplanting seed treatment.** For reaching the maximum effective result (increasing germination capacity and vigor of germination, stimulating processes of plants growth and development) it is strongly recommended to treat the seeds by the “EDAGUM®SM” mixed with appropriate fungicides and/or pesticides.

#### Recommended rates:

**400-800 ml “EDAGUM®SM” + fungicide + 10 L of water for 1 ton of seeds.** Duration of treatment should be found depending local technology.

#### Foliar feedings.

#### Recommended scheme during the vegetation period:

**1<sup>st</sup> feeding** – from seedlings appearing to 3 unfolded leaves stages: “EDAGUM®SM” + agrochemicals (herbicide, etc) + soluble mineral fertilizer (if needed);

**2<sup>nd</sup> feeding** – in tillering branching phase stages: “EDAGUM®SM” + agrochemicals (fungicide, insecticide etc) + soluble mineral fertilizer (if needed);

**3<sup>d</sup> feeding** – after 10-12 days after previous treatment: “EDAGUM®SM” + agrochemicals (fungicide, insecticide etc).

#### Recommended rates:

**400-800 ml “EDAGUM®SM” + 300 L of water per 1 hectare.**

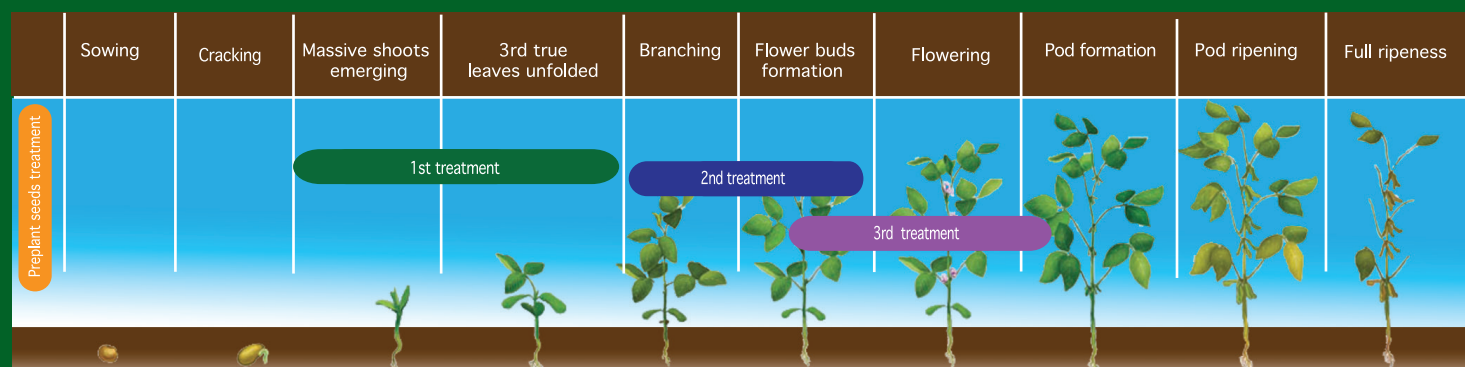
#### Foliar feedings allows:

- to increase yields on 30-40 % and more;
- to accelerate the growth processes;
- to raise efficiency of mineral fertilizers and pesticides, and, thereby, to reduce their application rate - on 15-50%.
- to improve plant sustainability to pesticides side effects;
- to improve plant sustainability to diseases (like fusariosis, bacteriosis, Ascochyta blight, septoria blight etc.).

“EDAGUM®SM” can be applicated either independently or in tank mixes with pesticides, reducing it’s side effects; with mineral fertilizer and agrochemicals, intensifying it’s action.

#### ATTENTION!

*It is recommended to conduct a preliminary test in small volume in order to check “EDAGUM®SM” and planned for use chemicals compatibility. Make sure that sedimentation doesn’t take place.*



## GRAIN MAIZE

### RECOMMENDATIONS FOR APPLICATION

**Preplanting seed treatment.** For reaching the maximum germination capacity and vigor of germination, stimulating development of the shoots it is recommended to treat the seeds by the “EDAGUM®SM” mixed with appropriate fungicides and/or pesticides.

#### Recommended rates:

**400-800 ml** “EDAGUM®SM” + fungicide (if needed) + **10 L** of water for 1 ton of seeds.  
Duration of treatment should be found depending local technology.

#### Foliar feedings.

#### Recommended scheme during the vegetation period:

**1<sup>st</sup> feeding** - in 3-5 unfolded leaves stage;  
**2<sup>nd</sup> feeding** – from heading to flowering stages.

#### Recommended rates:

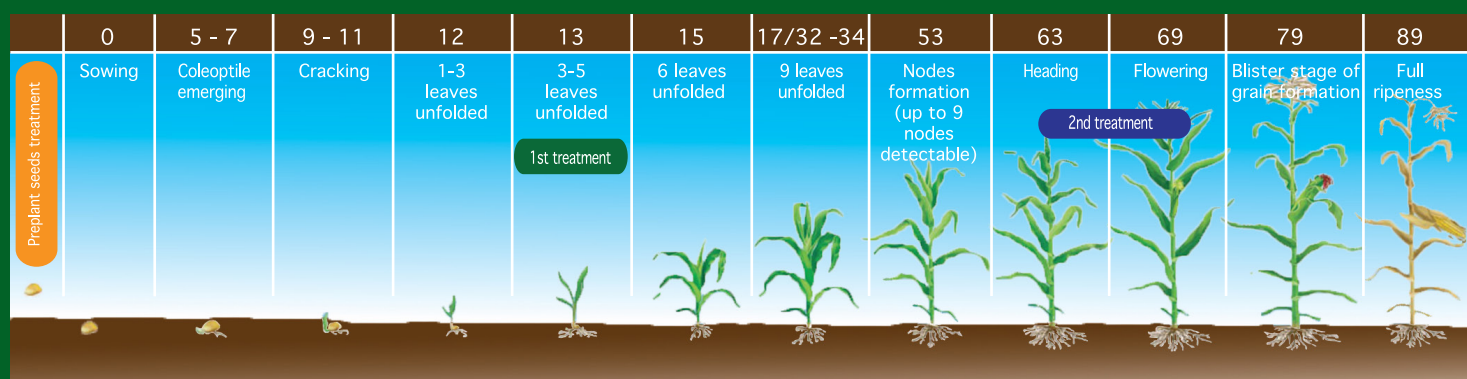
**400-800 ml** “EDAGUM®SM” + **300 L** of water per **1 hectare**.

#### Foliar feedings allows:

- to raise yields on 12-18 %;
- to improve plant resistance to draught;
- to increase seed germination capacity;
- to raise efficiency of mineral fertilizers and pesticides, and, thereby, to reduce their application rate - on 15-50%;
- to improve grains quality;
- to accelerate the growth processes;
- to improve plant sustainability to diseases (like Helminthosporium disease or blister smut) and pesticides side effects;
- raise proteins content on 1-1,5%.

#### ATTENTION!

*It is recommended to conduct a preliminary test in small volume in order to check “EDAGUM®SM” and planned for use chemicals compatibility. Make sure that sedimentation doesn't take place.*





# POTATOES

## RECOMMENDATIONS FOR APPLICATION

**Preplanting tubers soaking.** For the increasing germination capacity and vigor of germination, stimulating processes of plants growth and development. It is recommended to treat the tubers by the “EDAGUM®SM” mixed with appropriate fungicides and/or pesticides

### Recommended rates:

**400-800 ml** “EDAGUM®SM” + fungicide (if needed) + **40 L** of water for **1 ton** of tubers. Recommended duration of soaking – **15 hours**, but it also might be found depending local technology.

### Foliar feedings.

### Recommended scheme during the vegetation period:

**1<sup>st</sup> feeding** – in 6-8 true leaves unfolded stage: “EDAGUM®SM” + agrochemicals (herbicide, etc) + soluble mineral fertilizer (if needed);

**2<sup>nd</sup> feeding** – in beginning of crop cover stage: “EDAGUM®SM” + agrochemicals (fungicide, insecticide etc);

**3<sup>rd</sup> feeding** – during the flowering stage: “EDAGUM®SM” + agrochemicals (fungicide, insecticide etc).

### Recommended rates:

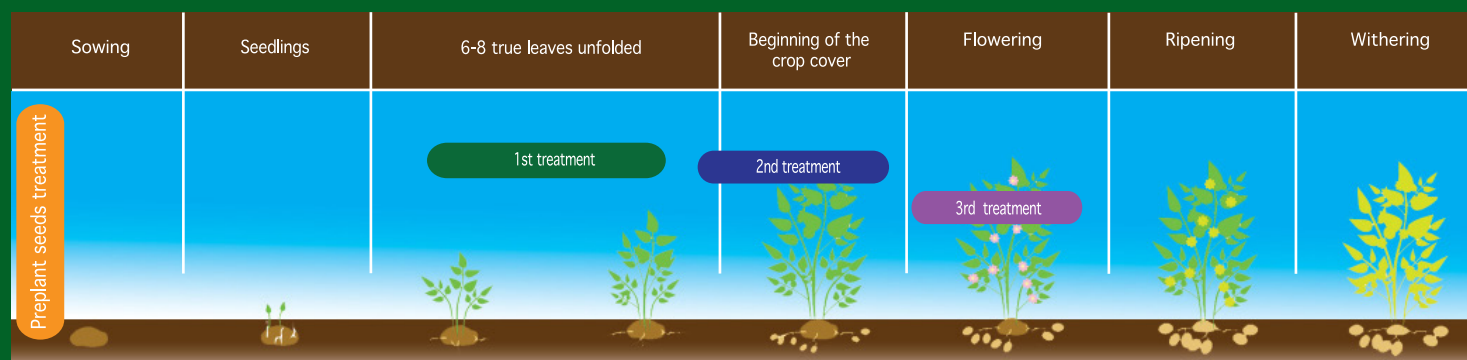
**400-800 ml** “EDAGUM®SM” + **300 L** of water per **1 hectare**.

### Foliar feedings allows:

- to increase yields on 20% and more;
- to stimulate plant sustainability to diseases and pesticides side effects;
- to activate development of the plants since the initial stages of growth;
- to increase amount of dry substance increases on 11-25 centner per hectare;
- to improve the production quantity – to raise the seeds glassiness and decrease hoodness;
- to reduce the application rate of the mineral fertilizer on 15-50%;
- to increase plant sustainability to diseases;
- to accelerate the maturation of the harvest on a few days.

### ATTENTION!

*It is recommended to conduct a preliminary test in small volume in order to check “EDAGUM®SM” and planned for use chemicals compatibility. Make sure that sedimentation doesn't take place.*



# TOMATOES, EGGPLANTS, SWEET PEPPER, CHILI, OKRA, etc. CUCUMBERS, ZUCCHINI, SQUASH, etc.

RECOMMENDATIONS FOR APPLICATION

**Preplanting seed treatment.** Promotes increasing of the germination capacity and vigor of germination of seeds.

### Recommended rates:

**40-80 ml “EDAGUM®SM” + 10 L** of water for **10 kilograms** of seeds. For maximum effects a combination of “EDAGUM®SM” with necessary agrochemical preparations (fungicides, pesticides) is advised. Duration of treatment – **15 hours**.

### Foliar feedings.

### Recommended scheme during the vegetation period:

**1<sup>st</sup> feeding** – in 2-3 true leaves unfolded stage: “EDAGUM®SM” + agrochemicals (herbicide, etc) + soluble mineral fertilizer (if needed);

**2<sup>nd</sup> feeding** – in 10-12 days after the first feedings: “EDAGUM®SM” + agrochemicals (fungicide, insecticide etc);

**3<sup>d</sup> feeding** – after the 20-25 days after the first feedings: “EDAGUM®SM” + agrochemicals (fungicide, insecticide etc).

### Recommended rates:

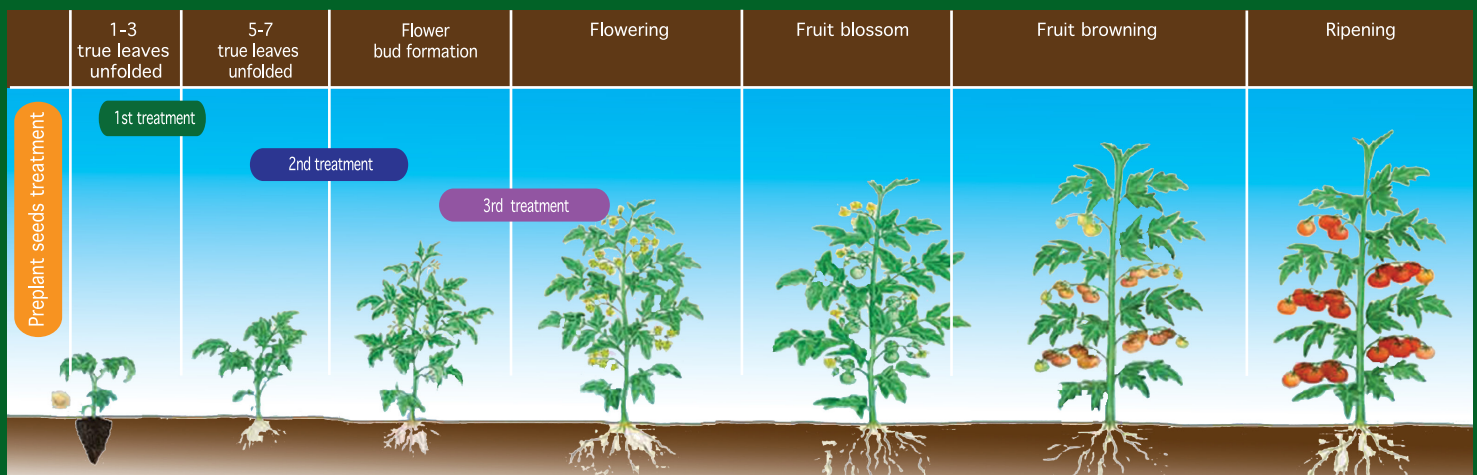
**400-800 ml “EDAGUM®SM” + 300 L** of water per **1 hectare**.

### Foliar feedings allows:

- to increase yields on 50% and even more;
- to improve yields properties;
- to stimulate plant sustainability to unfavorable weather conditions;
- plant sustainability to diseases (like late blight and downy mildew or alternaria blight) and pesticides side effects;
- to activate plant growth and development processes;
- to accelerate the maturation of the harvest on a few days.

### ATTENTION!

*It is recommended to conduct a preliminary test in small volume in order to check “EDAGUM®SM” and planned for use chemicals compatibility. Make sure that sedimentation doesn't take place*





# ONION, CARROT

## RECOMMENDATIONS FOR APPLICATION

**Preplanting seed treatment.** Promotes increasing of the germination capacity and vigor of germination of seeds.

### Recommended rates:

**40-80 ml “EDAGUM®SM” + 10 L** of water for **10 kilograms** of seeds. For maximum effects is advised a combination of “EDAGUM®SM” with necessary agrochemical preparations (fungicides, pesticides).  
Duration of treatment – **15 hours**.

### Foliar feedings.

### Recommended scheme during the vegetation period:

**1<sup>st</sup> feeding** – in 3-4 true leaves unfolding stage: “EDAGUM®SM” + agrochemicals (herbicide, etc) + soluble mineral fertilizer (if needed);

**2<sup>nd</sup> feeding** – in 10-12 days after the first feedings: “EDAGUM®SM” + agrochemicals (fungicide, insecticide etc);

**3<sup>d</sup> feeding** – after the 20-25 days after the first feedings: “EDAGUM®SM” + agrochemicals (fungicide, insecticide etc).

### Recommended rates:

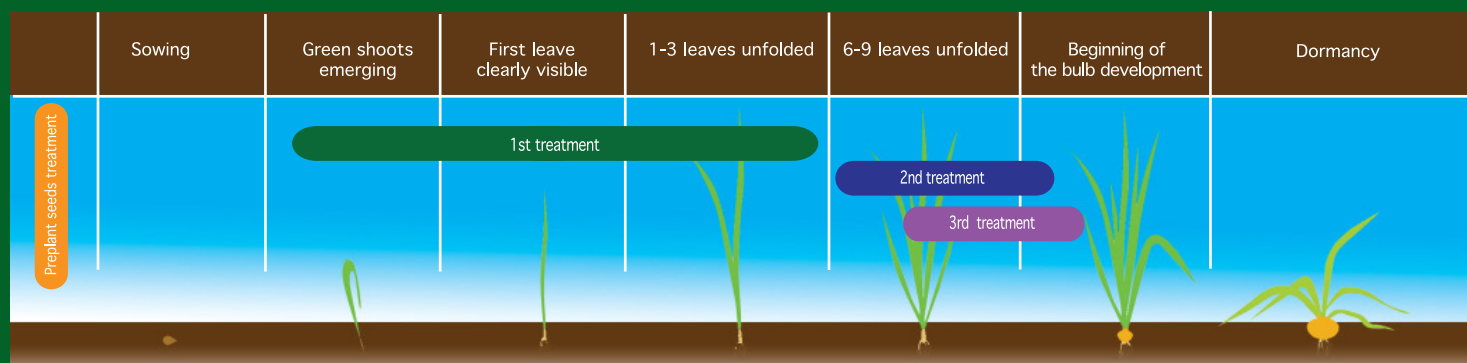
**400-800 ml “EDAGUM®SM” + 300 L** of water per **1 hectare**.

### Foliar feedings allows:

- to increase yields on 50% and even more;
- to improve yields properties;
- to increase plant sustainability to unfavorable weather conditions;
- plant sustainability to diseases and pesticides side effects;
- to activate growth and development processes;
- to accelerate the maturation of the harvest on a few days.

### ATTENTION!

*It is recommended to conduct a preliminary test in small volume in order to check “EDAGUM®SM” and planned for use chemicals compatibility. Make sure that sedimentation doesn't take place.*



## GREENHOUSE

### RECOMMENDATIONS FOR APPLICATION

#### TOMATOES, EGGPLANTS, SWEET PEPPER, etc.:

- **Seed Soak:** per 10 kg of seeds should be immersed for 15 hours in the diluted solution, which was made from 40-80 ml of “EDAGUM<sup>®</sup>SM” and 10 liters of water.
- **Soak seedling roots** for 15 minutes in 40 – 80 ml “EDAGUM<sup>®</sup>SM” + 10 liters of water before planting.
- **Fertilizing at the roots:** fertilize every hectare at the roots with solution made from 1500 - 2000 ml of “EDAGUM<sup>®</sup>SM” and 1 ton of water (if later growth slows down, for example, under the affect of cold, etc., can carry out a second fertilizing at the roots).
- **Fertilize on growing season:** fertilize 2-3 times with solution, which is made from 500 - 1000 ml of liquid humic acid fertilizer “EDAGUM<sup>®</sup>SM” + 500 liters of water (or one ton of water, depending on the type of sprayer). The last time should fertilize on the 100th day (when appears fth - sixth raceme).

#### CUCUMBERS, ZUCCHINI, SQUASH, MELONS, etc.:

- **Soaking seeds:** per 10 kg of seeds soak in 40-80 ml “EDAGUM<sup>®</sup>SM” + 10 l of water for 15 hours.
- **Fertilizing at the roots:** fertilize every one hectare at the roots with solution made from 1500 -2000 ml “EDAGUM<sup>®</sup>SM” + 1000 liters of water after appearance of 2-3 true leaves.
- **Fertilize on growing season:** Fertilize after every 15 days with solution, which is made from 500 - 1000 ml of “EDAGUM<sup>®</sup>SM” + 500 liters of water (or 1000 liters of water, depending on the type of sprayer). In order to reduce 20 - 30% application of other types of fertilizers, we recommend to treat the soil 15 -20 days before planting with the solution of 1500 -2000 ml “EDAGUM<sup>®</sup>SM” + 1000 liters of water per 1 hectare.

#### ATTENTION!

*It is recommended to check the compatibility of “EDAGUM<sup>®</sup>SM” and other agrochemicals, which will be applied together by mixing them in small volumes to make sure, that there is no precipitation after mixing.*



# SUGARCANE

## RECOMMENDATIONS FOR APPLICATION

### Stubble residue treatment. (Optional).

“EDAGUM®SM” is introduced during the plowing of the soil.

#### Recommended rates:

1500-3000 ml of “EDAGUM®SM” + 1000 L of water per 1 hectare

- increases the degree of decomposition of residues to 80%, which reduces the need for nitrogen fertilizers.
- activates the native microflora.

### Soil preparation before planting for 30 days (Optional).

“EDAGUM®SM” is applied together with mineral fertilizers or without them.

#### Recommended rates:

1500-3000 ml of “EDAGUM®SM” + 1000 L of water per 1 hectare

- increases the enzymatic activity of the soil, which, in turn, increases the mobility of the nutrient elements of the soil;
- allows to reduce the application of mineral fertilizers by 20-40%.
- reduces the development of pathogenic microflora,
- increases the resistance of plants to fungal and viral diseases.
- promotes revival of fertility and ecological cleanliness of soil.

**Preplanting cuttings soaking.** Is recommended for the accelerating the growth processes and reducing liability to diseases.

**Recommended rates:** 400 ml of “EDAGUM®SM” + 100 L of water

Duration of soaking – 2-3 hours, by putting the cuttings into the solutions.

### Planting cuttings (Optional).

After planting the cuttings, treat the furrow with compost (if applicable), pour of “EDAGUM®SM” solution (separately or together with mineral fertilizers and fungicides).

**Recommended rates:** 1500 -2000 ml of “EDAGUM®SM” + 1000 L of water per 1 ha

#### Allows you to:

- improves the survival of cuttings during transplantation;
- the development of the rootsystem is activated;
- the resistance of plants to bacterial and fungal diseases increases.

### Foliar feedings during the vegetations.

#### Recommended scheme during the vegetation period:

1<sup>st</sup> feeding – from tillering up to stooling stages: “EDAGUM®SM” + agrochemicals (herbicide, etc.) + soluble mineral fertilizer (if needed);

**Recommended rate:** 750 ml of “EDAGUM®SM” + 300 L of water per 1 ha.

2<sup>nd</sup> and 3<sup>d</sup> feeding in the period before the closing of the leaves in the aisles:

“EDAGUM®SM” + agrochemicals (fungicide, insecticide etc.), if needed;

**Recommended rate for 2nd feeding:** 1000 ml of “EDAGUM®SM” + 500 L of water per 1 ha.

**Recommended rate for 3d feeding:** 1250 ml of “EDAGUM®SM” + 800 L of water per 1 ha.

#### Foliar feedings allows:

- to raise yields;
- to improve the resistance of plants to drought;
- to raise efficiency of mineral fertilizers and pesticides, and, thereby, to reduce their application rate - on 15-50%;
- to accelerate the growth processes;
- to improve plant sustainability to diseases and pesticides side effects;
- raise sugar conten.

#### ATTENTION!

*It is recommended to conduct a preliminary test in small volume in order to check compatibility of “EDAGUM®SM” and chemicals. Make sure that sedimentation doesn't take place.*

**Stubble residue treatment.****Recommended rates:**

1500-3000 ml of “EDAGUM®SM” + 1000 L of water per 1 hectare

- increases the degree of decomposition of residues to 80%, which reduces the need for nitrogen fertilizers.
- activates the native microflora.

**Soil preparation before planting for 10-14 days.****Recommended rates:**

1500-3000 ml of “EDAGUM®SM” + 1000 L of water per 1 hectare

- increases the enzymatic activity of the soil, which, in turn, increases the mobility of the nutrient elements of the soil;
- allows to reduce the application of mineral fertilizers by 20-40%.
- reduces the development of pathogenic microflora,
- increases the resistance of plants to fungal and viral diseases.
- promotes revival of fertility and ecological cleanliness of soil.

**Planting of seedlings**

After planting the seedling in a hole with compost (if applicable), pour “EDAGUM®SM” solution (separately or together with mineral fertilizers and fungicides).

**Recommended rates:** 100 ml of “EDAGUM®CM” + 20 L of water per 1 hole.

**Allows you to:**

- improves the survival of seedlings during transplantation;
- the development of the root system is activated;
- the resistance of plants to bacterial and fungal diseases (fusarium wilt, black cigatoka, rootrot, etc.) increases.

**Foliar feedings during the vegetations.**

Spraying together with fungicides and pesticides or separately (3-4 times) during the growing season.

**Recommended rates:** 1500 -3000 ml of “EDAGUM®SM” + 1000 L of water per 1 ha.

For maximum effects is advised a combination of “EDAGUM®SM” with necessary agrochemical preparations (fungicides, pesticides).

**Allows you to:**

- increase productivity and improve the appearance of fruits;
- improve the taste properties of fruits and the quality of products: increases the content of vitamins, sugars, proteins;
- reduce the application rates of pesticides by 15-20%, mineral fertilizers by 20-40%, simultaneously removes stress from their effects;
- increase the resistance of plants to bacterial and fungal diseases;
- to increase the storage period of fruits.

**ATTENTION!**

*It is recommended to conduct a preliminary test in small volume in order to check compatibility of “EDAGUM®SM” and chemicals. Make sure that sedimentation doesn't take place.*



## MANGO, PAPAYA

### RECOMMENDATIONS FOR APPLICATION

#### At seed reproduction

**Preplanting seed treatment.** Is inevitable for the increasing germination capacity and vigor of germination in a shorter possible times, promotes root formation.

**Recommended rates:**

1000 ml of “EDAGUM®SM” + 100 L of water per 100 kg of seeds.  
Soak the seeds in the working solution for 24 hours.

#### Treatment of seedlings on vegetation

Spraying seedlings together with or without plant protection products.

**Recommended rates:** 500-1000 ml of “EDAGUM®SM” + 300 L of water per 1 hectare.

Regular watering seedlings every 20-25 days.

Increases the resistance of plants to bacterial and fungal diseases, enhances growth processes.

#### Planting of seedlings

After planting the seedling in a hole with compost (if applicable), pour “EDAGUM®SM” solution (separately or together with mineral fertilizers and fungicides).

**Recommended rates:** 100 ml of “EDAGUM®SM” + 20 L of water per 1 hole.

#### Allows you to:

- improves the survival of seedlings during transplantation;
- the development of the root system is activated;
- the resistance of plants to bacterial and fungal diseases (fusarium wilt, black cigatoka, rootrot, etc.) increases.

#### For vegetative reproduction

**Preplanting cuttings soaking.** Is recommended for the accelerating the growth processes and reducing liability to diseases.

**Recommended rates:** 500 ml of “EDAGUM®SM” + 100 L of water

Duration of soaking – 24 hours, by putting the cuttings into the solutions on 1/3.

#### Foliar feedings during the vegetations.

Spray plants from the formation of the kidneys to intensive growth of fruits:

4-5 times together with the necessary agrochemical preparations (fungicides, pesticides) or without them.

**Recommended rates:** 1500-3000 ml of “EDAGUM®SM” + 1000 L of water per 1 hectare.

For maximum effects is advised a combination of “EDAGUM®SM” with necessary agrochemical preparations (fungicides, pesticides).

#### Allows you to:

- increase productivity and improve the appearance of fruits;
- improve the taste properties of fruits and the quality of products: increases the content of vitamins, sugars, proteins;
- reduce the application rates of pesticides by 15-20%, mineral fertilizers by 20-40%, simultaneously removes stress from their effects;
- increase the resistance of plants to bacterial and fungal diseases;
- to increase the storage period of fruits.

### ATTENTION!

*It is recommended to conduct a preliminary test in small volume in order to check compatibility of “EDAGUM®SM” and chemicals. Make sure that sedimentation doesn't take place.*

## MELONS

### WATERMELON, MELON, PUMPKIN

#### RECOMMENDATIONS FOR APPLICATION

**Preplanting seed treatment.** It increases germination capacity and vigor of germination, stimulates processes of plants growth and development, especially on the initial stages.

#### Recommended rates:

**80-160 ml “EDAGUM®SM”** + fungicide (if needed) + **20 L** of water for **10 kilograms** of seeds.  
Duration of treatment – **15 hours**.

#### Foliar feedings.

#### Recommended scheme during the vegetation period:

**1<sup>st</sup> feeding** – in peavines formation stage;  
**2<sup>nd</sup> feeding** – in 15-20 days after the first feedings.

#### Recommended rates:

**400-800 ml “EDAGUM®SM”** + **300 L** of water per **1 hectare**.

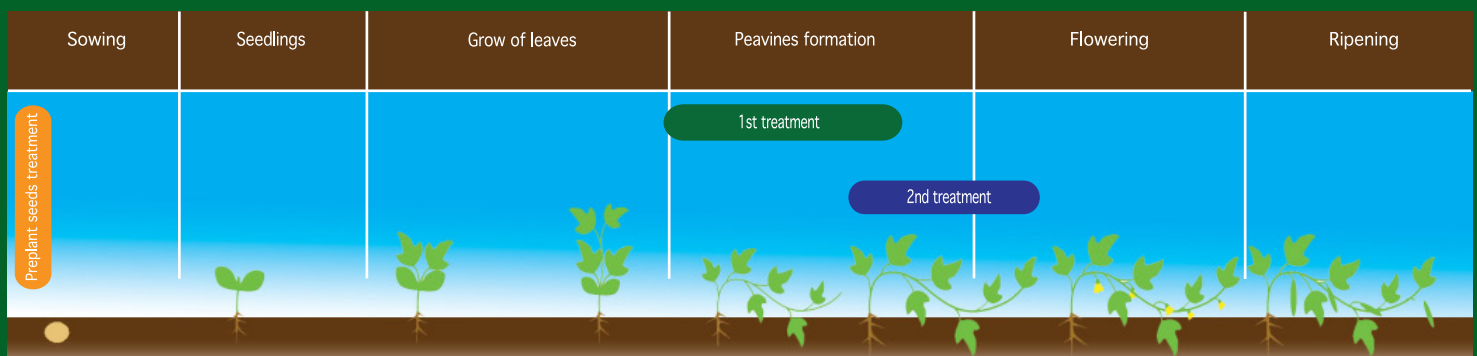
For maximum effects is advised a combination of “EDAGUM®SM” with necessary agrochemical preparations (fungicides, pesticides).

#### Foliar feedings allows:

- to increase yields on 30-50%;
- to improve yields properties;
- to efficiently increase plant sustainability to unfavorable environment effects (like draught, surplus wetting etc.);
- to improve plant sustainability to diseases (like downy mildew or cercospora) and pesticides side effects.

#### ATTENTION!

*It is recommended to conduct a preliminary test in small volume in order to check “EDAGUM®SM” and planned for use chemicals compatibility. Make sure that sedimentation doesn't take place.*





# GRAPE

## RECOMMENDATIONS FOR APPLICATION

**Preplanting cuttings soaking.** Is recommended for the accelerating the growth processes and reducing liability to diseases.

### Recommended rates:

**300-600 ml “EDAGUM®SM” + 100 L** of water.

Duration of soaking – **24 hours**, by putting the cuttings into the solutions on 1/3.

### Foliar feedings during the vegetations.

**1st feeding** – in flower bud formation stage;

**2nd feeding** – during the inflorescence stage;

**3d and 4th feeding** – in berries maturing stage.

### Recommended rates:

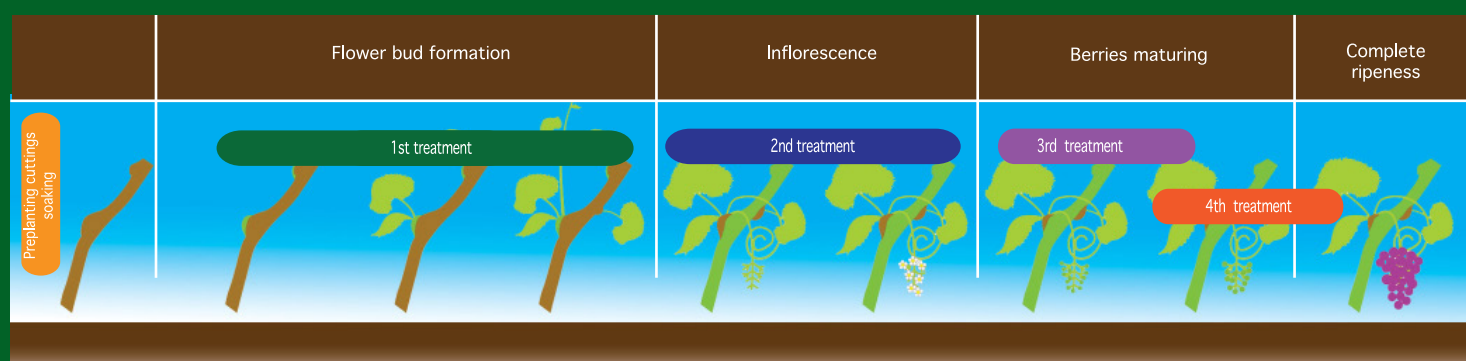
**1000-2000 ml “EDAGUM®SM” + 1000 L** of water per **1 hectare**.

### Foliar feedings allows:

- to increase yields and products appearance;
- to humiliate unfavorable weather circumstances;
- to increase tastes properties of production;
- to accelerate the growth processes;
- to raise efficiency of mineral fertilizers and pesticides, and, thereby, to reduce their application rate.

### ATTENTION!

*It is recommended to conduct a preliminary test in small volume in order to check “EDAGUM®SM” and planned for use chemicals compatibility. Make sure that sedimentation doesn't take place.*



## STONE FRUITS

**CHERRY, PLUM, PEACH, ALMONDS, BLUEBERRIES, PISTACHIOS etc.**

RECOMMENDATIONS FOR APPLICATION

**Preplanting cuttings soaking.** Is recommended for the accelerating the growth processes and reducing liability to diseases.

### Recommended rates:

**300-600 ml “EDAGUM®SM” + 100 L** of water.

Duration of soaking – **24 hours**, by putting the cuttings into the solutions on 1/3.

**Foliar feedings during the vegetations.**

### Recommended scheme during the vegetation period:

**1<sup>st</sup> feeding** – immediately after the inflorescence stage;

**2<sup>nd</sup> feeding** – in the beginning of the ovary dropping;

**3<sup>d</sup> feeding** – after 15-20 days after the ovary dropping;

**4<sup>th</sup> feeding** – after 30-40 days after the ovary dropping.

### Recommended rates:

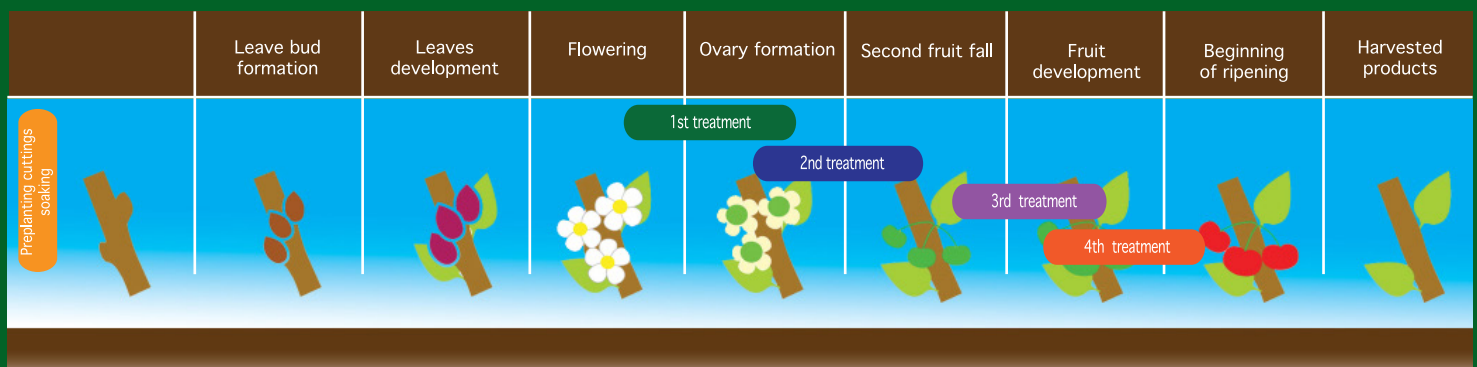
**1000-1500 ml “EDAGUM®SM” + 1000 L** of water per **1 hectare**. For maximum effects is advised a combination of “EDAGUM®SM” with necessary agrochemical preparations (fungicides, pesticides).

### Foliar feedings allows:

- to increase yields and products appearance;
- to humiliate unfavorable weather circumstances;
- to increase tastes properties of production;
- to accelerate the growth processes;
- to raise efficiency of mineral fertilizers and pesticides, and, thereby, to reduce their application rate.

### ATTENTION!

*It is recommended to conduct a preliminary test in small volume in order to check “EDAGUM®SM” and planned for use chemicals compatibility. Make sure that sedimentation doesn't take place.*





## APPLES AND PEARS

### RECOMMENDATIONS FOR APPLICATION

**Preplanting cuttings soaking.** Is recommended for the accelerating the growth processes and reducing liability to diseases.

#### Recommended rates:

**300-600 ml “EDAGUM®SM” + 100 L** of water.

Duration of soaking – **24 hours**, by putting the cuttings into the solutions on 1/3.

**Foliar feedings during the vegetations.**

#### Recommended scheme during the vegetation period:

**1<sup>st</sup> feeding** – in 5-7 days after the inflorescence stage;

**2<sup>nd</sup> feeding** – in the beginning of the ovary dropping;

**3<sup>d</sup> feeding** – in the flower buds formation stage;

**4<sup>th</sup> feeding** – in the fruit formation stage.

#### Recommended rates:

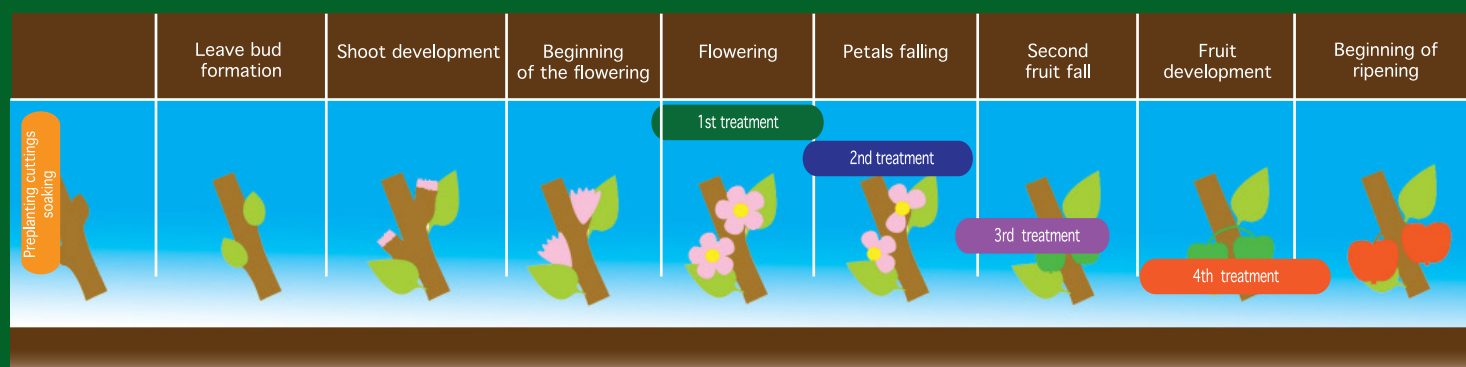
**1000-1500 ml “EDAGUM®SM” + 1000 L** of water per **1 hectare**. For maximum effects is advised a combination of “EDAGUM®SM” with necessary agrochemical preparations (fungicides, pesticides).

#### Foliar feedings allows:

- to increase yields and products appearance;
- to humiliate unfavorable weather circumstances;
- to increase tastes properties of production;
- to accelerate the growth processes;
- to raise efficiency of mineral fertilizers and pesticides, and, thereby, to reduce their application rate.

#### ATTENTION!

*It is recommended to conduct a preliminary test in small volume in order to check “EDAGUM®SM” and planned for use chemicals compatibility. Make sure that sedimentation doesn't take place.*



## COFFEE TREE

### RECOMMENDATIONS FOR APPLICATION

**Preplanting seed treatment.** Is inevitable for the increasing germination capacity and vigor of germination in a shorter possible times, promotes root formation.

**Recommended rates:**

1000 ml of “EDAGUM®SM” + 100 L of water per 100 kg of grains.  
Soak the grains in the working solution for 15-24 hours.

**Treatment of seedlings on vegetation**

Spraying seedlings together with or without plant protection products.

**Recommended rates:** 500-1000 ml of “EDAGUM®SM” + 300 L of water per 1 hectare.  
Regular watering seedlings every 20-25 days.

Increases the resistance of plants to bacterial and fungal diseases, enhances growth processes.

**Planting of seedlings**

After planting the seedling in a hole with compost (if applicable), pour “EDAGUM®SM” solution (separately or together with mineral fertilizers and fungicides).

**Recommended rates:** 100 ml of “EDAGUM®SM” + 20 L of water per 1 hole.

**Allows you to:**

- improves the survival of seedlings during transplantation;
- the development of the root system is activated;
- the resistance of plants to bacterial and fungal diseases (fusarium wilt, black cigatoka, rootrot, etc.) increases.

**Preplanting cuttings soaking.** Is recommended for the accelerating the growth processes and reducing liability to diseases.

**Recommended rates:** 500 ml of “EDAGUM®SM” + 100 L of water  
Duration of soaking – 24 hours, by putting the cuttings into the solutions on 1/3.

**Foliar feedings during the vegetations.**

4-5 times together with the necessary agrochemical preparations (fungicides, pesticides) or without them.

**Recommended rates:** 1500-2000 ml of “EDAGUM®SM” + 1000 L of water per 1 hectare.

For maximum effects is advised a combination of “EDAGUM®SM” with necessary agrochemical preparations (fungicides, pesticides).

**In the case of cropping the coffee tree – processing after cutting.**

**Recommended rates:** 1500-2000 ml of “EDAGUM®SM” + 1000 L of water per 1 ha.

**Allows you to:**

- increase productivity and improve the appearance of fruits;
- improve the taste properties of fruits and the quality of products: increases the content of vitamins, sugars, proteins;
- reduce the application rates of pesticides by 15-20%, mineral fertilizers by 20-40%, simultaneously removes stress from their effects;
- increase the resistance of plants to bacterial and fungal diseases;
- to increase the storage period of fruits.

**ATTENTION!**

*It is recommended to conduct a preliminary test in small volume in order to check compatibility of “EDAGUM®SM” and chemicals. Make sure that sedimentation doesn't take place.*



# TEA

## RECOMMENDATIONS FOR APPLICATION

### At seed reproduction

**Preplanting seed treatment.** Is inevitable for the increasing germination capacity and vigor of germination in a shorter possible times, promotes root formation.

#### Recommended rates:

1000 ml of “EDAGUM®SM” + 100 L of water per 100 kg of seeds.  
Soak the seeds in the working solution for 24 hours.

### Treatment of seedlings on vegetation

Spraying seedlings together with or without plant protection products.

**Recommended rates:** 500-1000 ml of “EDAGUM®SM” + 300 L of water per 1 hectare.  
Regular watering seedlings every 20-25 days.

Increases the resistance of plants to bacterial and fungal diseases, enhances growth processes.

### Planting of seedlings

After planting the seedling or cutting in a hole with compost (if applicable), pour “EDAGUM®SM” solution (separately or together with mineral fertilizers and fungicides).

**Recommended rates:** 50 ml of “EDAGUM®SM” + 20 L of water per 1 hole.

#### Allows you to:

- improves the survival of seedlings during transplantation;
- the development of the root system is activated;
- the resistance of plants to bacterial and fungal diseases increases.

### For vegetative reproduction

**Preplanting cuttings soaking.** Is recommended for the accelerating the growth processes and reducing liability to diseases.

**Recommended rates:** 500 ml of “EDAGUM®SM” + 100 L of water  
Duration of soaking – 24 hours, by putting the cuttings into the solutions on 1/3.

#### Foliar feedings during the vegetations.

- 1-2 times before each harvest of leaves together with the necessary agrochemical preparations (fungicides, pesticides) or without them.
- treatment after each pruning of tea bushes

**Recommended rates:** 1500-3000 ml of “EDAGUM®SM” + 1000 L of water per 1 hectare.

For maximum effects is advised a combination of “EDAGUM®SM” with necessary agrochemical preparations (fungicides, pesticides).

#### Allows you to:

- increase productivity;
- improve the taste properties and the quality of products;
- reduce the application rates of pesticides by 15-20%, mineral fertilizers by 20-40%, simultaneously removes stress from their effects;
- increase the resistance of plants to bacterial and fungal diseases;
- increase resistance to unfavorable weather conditions.

### ATTENTION!

*It is recommended to conduct a preliminary test in small volume in order to check compatibility of “EDAGUM®SM” and chemicals. Make sure that sedimentation doesn't take place.*

## CITRUS PLANTS

### RECOMMENDATIONS FOR APPLICATION

**Preplanting cuttings soaking.** Is recommended for the accelerating the growth processes and reducing liability to diseases.

#### Recommended rates:

**300-600 ml “EDAGUM®SM” + 100 L** of water.

Duration of soaking – **24 hours**, by putting the cuttings into the solutions on 1/3.

**Foliar feedings during the vegetations.**

#### Recommended scheme during the vegetation period:

**1<sup>st</sup> feeding** – after the inflorescence stage;

**2<sup>nd</sup> feeding** – in the beginning of the ovary dropping;

**3<sup>d</sup> feeding** – after 15-20 days after the ovary dropping;

**4<sup>th</sup> feeding** – after 30-40 days after the ovary dropping.

#### Recommended rates:

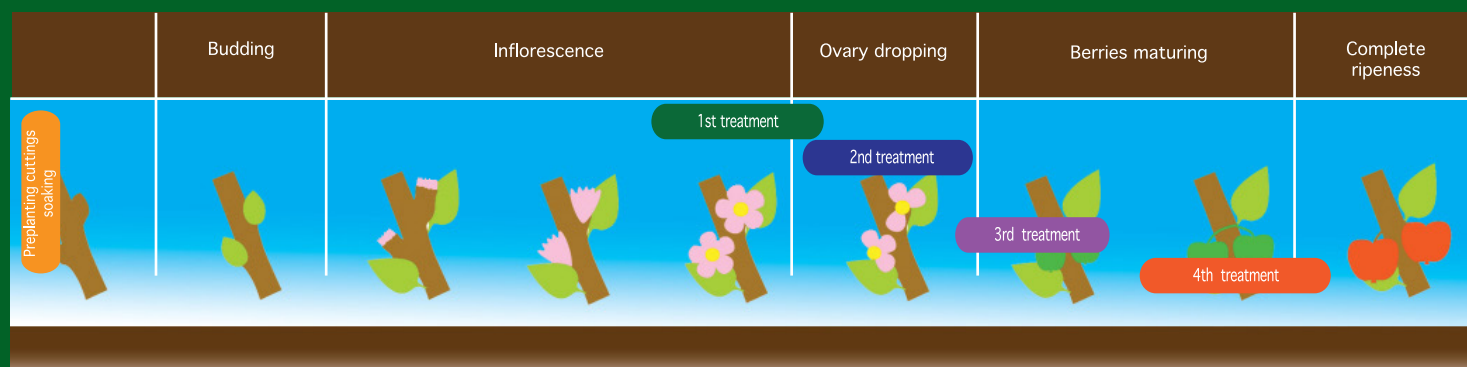
**1000-1500 ml “EDAGUM®SM” + 1000 L** of water per **1 hectare**. For maximum effects is advised to use “EDAGUM®SM” in combination with necessary agrochemical preparations (fungicides, pesticides).

#### Foliar feedings allows:

- to increase yields and products appearance;
- to humiliate unfavorable weather circumstances;
- to increase tastes properties of production;
- to accelerate the growth processes;
- to raise efficiency of mineral fertilizers and pesticides, and, thereby, to reduce their application rate.

#### ATTENTION!

*It is recommended to conduct a preliminary test in small volume in order to check “EDAGUM®SM” and planned for use chemicals compatibility. Make sure that sedimentation doesn't take place.*





## OTHER CULTURES

### RECOMMENDATIONS FOR APPLICATION



#### FODDER GRASSES

**Treatment of vegetating plants.** 1<sup>st</sup> feeding – in mass shoots appearing stage, 2<sup>nd</sup> feeding – in the 5-6 leaves stage, 3<sup>rd</sup> and 4<sup>th</sup> feeding – in stooling stage.

**Recommended rates:** 400 – 800 ml “EDAGUM®SM” + 300 L of water per 1 ha.



#### PEANUT

**Preplanting seed treatment:** 400-800 ml “EDAGUM®SM” + 10 L of water for 1 ton of seeds. **Treatment of vegetating plants:** 1<sup>st</sup> - during the emergence phase of sprouting - the formation of real leaves; 2<sup>nd</sup> - in the phase of branching - the beginning of flowering; 3<sup>rd</sup> and 4<sup>th</sup> - after flowering and formation of the gynophore before the ripening of the beans.

**Recommended rates:** 400-800 ml of EDAGUM®SM + 300 L of water per 1 ha.



#### PINEAPPLES

**Treatment of planting material.** Before planting - soak the seedlings (in cut places). Duration of treatment 1-2 hours. **Recommended rates:** 400 ml of “EDAGUM®SM” + 10 L of water.

**Treatment of vegetating plants:** 1<sup>st</sup>- spraying of plantations after 10-12 months; 2<sup>nd</sup> after 30-45 days; 3<sup>rd</sup> - spraying of plants 10-12 months after the first harvest; 4<sup>th</sup>- spraying the plants 10-12 months after the secondary harvest.

**Recommended rates:** 500- 1000 ml of “EDAGUM®SM” + 300 L of water per 1 ha.



#### RAPE (COLZA)

**Preplanting seed treatment:** 400-800 ml “EDAGUM®SM” + fungicide (if needed) + 10 L of water for 1 ton of seeds. **Treatment of vegetating plants:** 1<sup>st</sup> feeding – in autumn, in 4-6 unfolded leaves stage; 2<sup>nd</sup> feeding – in spring at the moment of full renewal of plant growth; 3<sup>rd</sup> feeding – in ovary forming stage; 4<sup>th</sup> feeding – after 8-10 days after previous feeding (end of the ovary forming stage).

**Recommended rates:** 400-800 ml of EDAGUM®SM + 300 L of water per 1 ha.



#### ROOTS: SUGAR BEET, BATATA, MANIOC, YAMS, TARO, etc.

**Preplanting seed treatment:** 400-800 ml “EDAGUM®SM” + 10 L of water for 1 ton of seeds.

**Treatment of vegetating plants:** 1<sup>st</sup> feeding – in 2-3 true leaves unfolded stage; 2<sup>nd</sup> feeding – in beginning of crop cover stage; 3<sup>rd</sup> feeding – after 10-12 days after previous treatment.

**Recommended rates:** 400-800 ml of “EDAGUM®SM” + 300 L of water per 1 ha.



#### SPICY HERBS: CORIANDER, PARSLEY, BASIL, FENNEL, ROSEMARY, etc.

**Soaking of seeds during 10 hours.** Consumption rate is 40-80 ml of “EDAGUM®SM” + 10 L of water for 10 kg of seeds. **Treatment of vegetating plants.** 1<sup>st</sup> feeding – in mass shoots appearing stage; 2<sup>nd</sup> feeding – in the 5-6 leaves stage; 3<sup>rd</sup> and 4<sup>th</sup> feeding – in stooling stage.

**Recommended rates:** 400-800 ml of “EDAGUM®SM” + 300 L of water per 1 ha.



#### SUNFLOWER

**Preplanting seed treatment:** 400-800 ml “EDAGUM®SM” + 10 L of soft water for 1 ton of seeds. **Treatment of vegetating plants:** 1<sup>st</sup> feeding – in shoots stage; 2<sup>nd</sup> feeding - in 3-4 pairs of leaves stage; 3<sup>rd</sup> feeding – after 12-15 days after previous application. Recommended

rates: 400-800 ml of “EDAGUM®SM” + 300 L of water per 1 ha.



#### TOBACCO

**Triple foliar feeding during vegetation:** 1<sup>st</sup> feeding in 5-8 days before planting, 2<sup>nd</sup> feeding an 5-10 days after seedlings planting, 3<sup>rd</sup> feeding after 15-20 days.

**Recommended rates:** 400-800 ml of “EDAGUM®SM” should be mixed in 300 L of water per 1 ha.

*Other crops are available on request.*

**“EDAGUM®SM” – BIOLOGICALLY ACTIVE MIRACLE OF NATURE!**

**EDAGUM**<sup>SM</sup>

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