# ACTIVATED PEAT HUMATE

biological protective-stimulating complex

NEW GENERATION OF
ORGANIC AND MINERAL
FERTILIZERS

TECHNOLOGY

# peat-humates are a product of a unique technology for enriching peat humates.

Peat humate enrichment technology was developed by Russian scientists, together with the Peat Industry Research Institute and the All-Russian Agricultural Microbiology Research Institute.Технология не имеет аналогов. Уникальная разработка защищена патентами.

peat humats are actively used in Russia, Europe, Kazakhstan, Uzbekistan, etc.

The technology has been successfully tested in the main soil and climatic conditions of Russia, a number of CIS countries, countries of Asia and South America.

# What is peat humate?

Peat humates are salts of humic acids obtained from peat by mechanochemical reactions. The most valuable in this product are water-soluble salts. Humified vegetation remains in swamps are converted into peat as a result of long-term decomposition in water without oxygen in swamps for several millennia. Peat humic acid-derived peat humates are used to improve soil fertility and increase crop yields.

**Russia ranks one of the first in the world in terms of peat reserves. The main deposits are located in Western Siberia, in the North Caucasus, in the Leningrad and Pskov regions and in Karelia.**

peat humates are produced on the basis of the best peat composition, mined in the Leningrad and Pskov regions and in Karelia.

# Why is peat humate the best solution?

Traditional peat humates are obtained from brown coal. The results of the experiments showed that the use of traditional humates from brown coal, despite the obtained efficiency, have a high consumption rate due to the low activity of humates. After all, the age of brown coals is millions of years. In addition, fossils, bitumen, heavy metals, as well as increased radiation are present in such humates. In this regard, some countries (India, Vietnam and South Africa) refused to supply fossil humates from brown coal.

Petersburg scientists have developed a biological product " Torfohumats" based on humates obtained from young lowland peat. This product is more than 40% more efficient than brown coal humates, has a high level of water-soluble humates and up to six strains of beneficial soil bacteria that favorably affect plant growth and development.

peat-humates combine high efficiency, environmental safety and contribute to sustainable crop growth and soil reclamation. They are an innovative solution for plant care and obtaining high-quality products.

# Why is peat humate the best solution?

**Environmental awareness:** peat humates are 100% organic fertilizer that meets the requirements of the environmental approach.

**Sustainable agriculture:** peat-humates enrich soil with organic substances, improve its structure and preserve fertility, contributing to the sustainable development of agriculture.

**Plant health and product quality:** peat humates are a biological protective-stimulating complex that increases plant immunity and protects them from pests and diseases. This increases the quality and nutritional value of the products.

**Improving the efficiency of plant care:** peat humates are easily introduced into the soil through irrigation systems and do not require additional equipment, as well as ensure an even distribution of nutrients. This allows you to reduce fertilizer costs and reduce the time and effort spent on plant care.

**Transition to organic agriculture:** peat humates meet the requirements of organic agriculture and are an effective means to achieve high results in this area.

# Innovative scientific developments

The undisputed advantage of  peat humates compared to any presented on the peat humates market is based on innovative scientific developments of Russian scientists. In  peat humates, the presence of water-soluble humates is 24% of dry peat, and in paste 4% of the total mass. The indicator for the production of humates and fulvates is two to three times higher than in other technologies.

The most important thing in the production of humates is to preserve the long molecular chains of humic and fulvic acids when turning them into water-soluble salts (chains of up to 10,000 molecules.  patented technology allows you to obtain long (up to 10,000 molecules) qualitative chains of molecules.

peat-humates are activated by useful soil bacteria - effective microorganisms - phlavobacteria. Being antagonists of the pathogenic flora, they actively destroy diseases: root rot, scab, powdery dew, destroy insects, etc.

peat-humates are activated by vortex water. Water structured by vortices rotating at 2 million revolutions per minute changes forever, and becomes "primordial" water (high-energy). In this water, the soil bacteria necessary for healthy plant growth do well and actively reproduce.

# Composition of peat-humate

## Peat

- Retains moisture.
- Retains nutrients
- It is a diet for plants

## Humates and fulvates

- Soil is lumped and melarized
- Deliver nutrients to roots

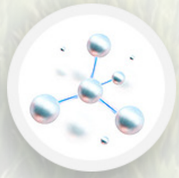
## Vortex water

- Increases the immunity of plants
- Ensures the vital activity of soil bacteria

## Trace elements

P K Na S Mg Fe Cu

Mn B Zn Mo Co Si



## Beneficial soil bacteria

- Promote biosymbiosis of plant roots with soil bacteria

## Flavobacteria

- Antagonists of pathogenic flora
- Protect plants from disease
- Protect beneficial soil bacteria

## Spore bacteria

- Protection against harmful insects

# Humates and fulvates

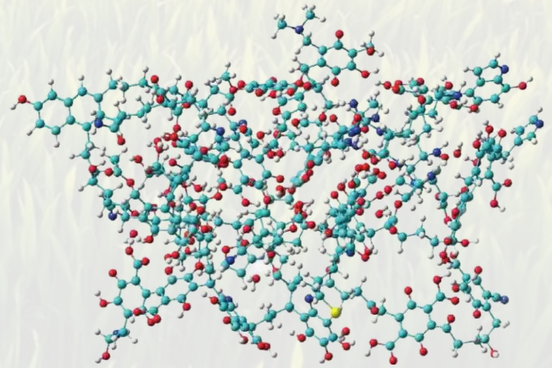
Humates and fulvates are sodium salts of humic and fulvic acids, which are key components of soil humus, its concentrated source.

These substances contribute to the transfer of the elements of nutrition to the chelation form, making them directly accessible to plants. Thus, humates and fulvates stimulate the growth and development of plants, as well as increase their immunity. Chelates of many elements, such as potassium, magnesium, molybdenum, zinc, copper, iron, etc., directly affect the general well-being of plants.

peat humates are characterized by a high content of salts of humic and fulvic acids, reaching up to 40% in dry matter, which makes them an important and effective means for stimulating the growth and strengthening of plant immunity.

The symbiosis of humates and fulvats creates optimal soil physics:

- dyes the soil black, intensifying its heating;
- retains a huge amount of water, increasing the moisture capacity;
- sandy soils give connectivity;
- clay soils – looseness, forming a lumpy structure.



Молекула гуминовой кислоты

# Vortex water

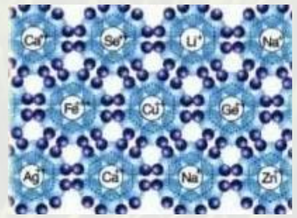
In St. Petersburg, a technology has been developed and a device has been created for the production of high-energy water - vortex mechanically activated structured water. This unique water has the ability to accelerate chemical reactions, strengthen concrete, enrich fertilizers, apply in firefighting, mining, animal husbandry, health care, disaster medicine, cosmetology and other fields.

A vortex mill creates water with special properties by breaking it into monomolecules and clusters of 3-4 molecules (whereas ordinary water has clusters of 17-24 molecules). This gives this water a high permeation capacity and allows interaction with materials at the molecular level. Water also has bactericidal properties, stimulates immunity and digestibility of mineral and organic substances.

Vortex water has high energy - up to 500 Kj/mol, which makes it possible to carry out energy nutrition of cells of plant and biological objects. Vortex water can penetrate the cells of plants and living organisms, dissolve and remove harmful substances, accelerate metabolic processes, and create a healthy information field. Vortex water increases plant immunity. Plants begin to fight various diseases themselves.

Water significantly contributes to the growth of plants and the reproduction of soil bacteria,

increases their vital activity.




Vortex water molecules

# Biological effect

## application of peat humates

- ✓ Powerful growth-stimulating effect - stimulates all physiological processes.
- ✓ Increases germination energy and germination of seeds (up to 98%).
- ✓ reduces ripening times by 10-12 days;
- ✓ Stimulates root formation. Contributes to the formation of ovaries and fruits.
- ✓ increases the resistance of plants to negative environmental factors (decrease in temperature, poor illumination, low humidity);
- ✓ Activates vital processes.
- ✓ Stimulates growth of active leaf surface area for photosynthesis.
- ✓ The pH of the product is 7.9-8. Effective in acidified soils.
- ✓ Protects plants and their roots from all types of fungi, as well as from many diseases
- ✓ 100% preservation of bacteria (microorganisms - antagonists of pathogenic microflora) from the moment of their introduction into peat until the moment of use.
- ✓ Patented technology for the use of strains of microorganisms - antagonists of pathogenic microflora. 1 cm3 contains up to 1 billion bacteria.
- ✓ Reduces the use of mineral fertilizers by 50-70%.
- ✓ Increases the efficiency of absorption of mineral substances and trace elements by plants;
- ✓ Increases the absorption of nutrients by plants.
- ✓ Improves the frost resistance of plants.
- ✓ Restores soil fertility. Stimulates the development of all soil microorganisms, which leads to the intensity of humus recovery;
- ✓ It contributes to the deep processing of chicken droppings to obtain environmentally friendly fertilizer.

# Economic Impact of Peat Humates

- ✓ Yield increase by 25-40%.
- ✓ Multiple improvements in the quality of agricultural products and grain class.
- ✓ Minimum costs. The consumption of peat humates is 5 kg per hectare of land. Processing 2-3 times a year.
- ✓ No additional equipment required. Added to irrigation and irrigation system.
- ✓ Sowing areas are increased. Restore infected soils, green dry areas.

The use of a unique technology gives a synergistic effect - the growth of plants is accelerated, the maturity of fruits is reduced, their yield increases, the resistance of plants to stress conditions increases, harmful insects are destroyed, the physical properties of the soil improve, soil fertility increases

# Applications of  Peat Humates




- **Agriculture.** Increasing crop yield and quality.
- **Gardening.** Creating fertile soil and healthy plants.
- **Landscape design.** Improving the appearance and stability of landscape objects.
- **Seedling and seedling production. Improving the quality and stress resistance of seedlings and seedlings.**
- **Reclamation.** Improving soil condition. Restoration of humus layer on sandy soils and salt marshes.

# Results of Application of  Peat Humates

- Increased yields.
- Improvement of grain quality and grain class.
- Increasing plant immunity.
- Protecting plants and roots from all fungal species, as well as most diseases.
- Restoration and rehabilitation of soils, including the restoration of infected areas in "contaminated" zones, chemically and radiation-infected areas.
- Increased water-retaining capacity and frost resistance of soils.
- Restoration of the humus layer of soils, including sandy soils and salt marshes.

# The results of the use of peat humates

| Agricultural Culture | Yield increase in% |
|---|---|
| Corn | 52,5 |
| Soy | 39,6 |
| Rees | 20 |
| Peas | 43 |
| Cabbage | 33 |
| Zucchini, squash | 40 |
| Cucumbers | 79 |
| Tomatoes | 63 |
| Wheat | 29 |
| Mandarin | 37 |
| Orange | 48 |
| Lemon | 32 |
| Persimmon | 29 |
| Feijoa | 21 |
| Kiwi | 38 |
| Grape | 33 |

All indicators are confirmed by acts of research institutes.

# Field tests

Field tests of peat humates have been conducted at research institutes across the country. All supporting documents with research results are available.

- All-Russian Research Institute of Potato Economy named after A.G. Lorch.
- I BEND the All-Russian Research Institute of the irrigated vegetable growing and melon growing of Russian Academy of Agrarian Sciences.
- Redkin Agro-Industrial Company.
- FSU "Rosselkhozcentr."
- GNU AFI of the Russian Agricultural Academy.
- Research Institute of Agriculture of the Academy of Sciences of Abkhazia.
- GNU Research Institute of Agriculture of the Southeast.
- Donskoy GAU.
- All-Russian Research Institute of Selection and Seed Production of Vegetable Crops RAAS.
- GNU VNII of irrigated vegetable and melon growing
- GNU AFI of the Russian Agricultural Academy.
- VNIIR named after N.I. Vavilova, GNU Kuban experimental station.
- FSEI HPE "Kuban State Agrarian University"
- FSU State Center for Agrochemical Service "Stavropol."
- Kursk Research Institute of Agro-Industrial Production.
- MSHA named after K.A. Timiryazev.

# Results of application












before
and
later

# Production

The production of  peat humates is carried out in its own production in the Leningrad Region. Peat humates are produced using advanced technologies and special processes to ensure high quality and efficiency of the product.

 peat-humates are produced taking into account environmental principles. Production has no carbon footprint. This is an important difference given the growing need for sustainable and sustainable materials.

Efficiency in the production of peat humates on innovative equipment is maximum. From 1 ton of peat, 1 ton of peat humates is obtained.

Each batch of  peat humates undergoes quality control to ensure that the product meets all necessary standards and requirements. Strict quality control at each stage of production is a guarantee of a reliable and effective product.

Ready-made peat and paper products are packaged in appropriate containers, which ensure the safety of the product and ease of transportation.

# Method of application

Treatment of seeds, plants and soils is carried out in 2-3 stages:

Stage 1. Seed etching.

Consumption: 2 liters of  peat humates per 1 ton of seeds.

Stage 2. Treatment during the growing season.

Consumption: 5 L of bioproduct per 1 ha.

It does not require additional equipment.  peat humates are introduced using a irrigation and irrigation system. It does not require additional equipment.

# Price and terms of delivery.


**Species:** fine paste.

**Packaging:** 10/20 litre plastic canister, ≥ 1000L,

**Cost:** 1 kg -

**Delivery conditions:** FOB port Ust-Luga, port Podporozhye, Leningrad Oblast, Russia.

**Delivery**: At the request of the customer, delivery can be organized to the destination by road, rail and sea containers.

**Support:** The company's specialists support the order, form recommendations on the use of  peat humates, depending on the region, soil properties and type of crops.

# The company's staffp

The company's team consists of experienced specialists in the field of peat industry, agriculture, microbiology and ecology.

The company's management and specialists actively cooperate to create innovative solutions based on the use of peat and humus in order to increase soil fertility and plant growth.

The main goal of the team is to develop and produce high-quality peat soil compositions that have optimal physicochemical properties and contribute to high yields and high-quality plant growth..

The company's team has extensive experience and expertise in the peat industry, which makes them professionals in their field. They also attach great importance to the environmental sustainability of the designed products, actively working on methods to minimize the negative impact of production on the environment and applying advanced technologies to improve the efficiency of peat use.

The company's team is ready to offer its products and expertise to agricultural enterprises that seek to improve the quality of their products and create attractive and sustainable landscapes.

# The volume of deliveries

**300** tons per month

THE SHELF LIFE OF FINISHED PEAT HUMATES IS 6 MONTHS