

# POW HUMUS PRO

potassium humate 80%

**Soluble German granules  
With irrigation water and foliar spray**



## Introduction:-

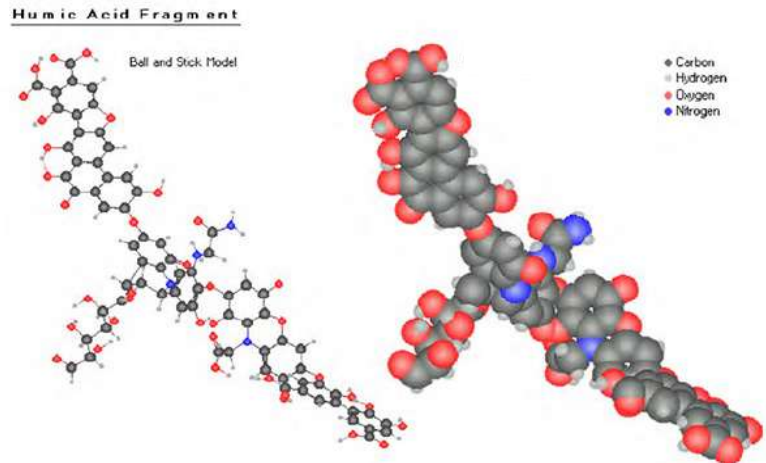
- Foundation fertilizer to improve soil properties, solve the effects of salinity, and plant growth stimulant
- It is a powdered fertilizer of organic matter of fine granules of brown color that contains 80% potassium granules of humic acids with a solubility of 100% and does not cause any blockage of irrigation tools and sprinklers. It is a natural growth stimulator and improver for clay soil and sandy soil.
- Crystalline granules are easy to transport and store and are used in all agricultural crops. They increase the effectiveness of fertilizers and reduce their costs
- Facilitate the absorption of nutrients and vitamins needed to perform vital processes within the plant

## What are humic and fulvic acids:

Humic acid is a humic substance that is formed through the process of chemical and biological degradation of plant and animal materials (the dehumidification process is the conversion of organic matter and organic residues of plants and animals in the soil into shapeless, insoluble, black organic matter) through the biological activities of soil microorganisms. The best source of humic acids is the sedimentation layers of fine brown coal, which is referred to as Leonhardites and in which humic acids are found in high concentration.

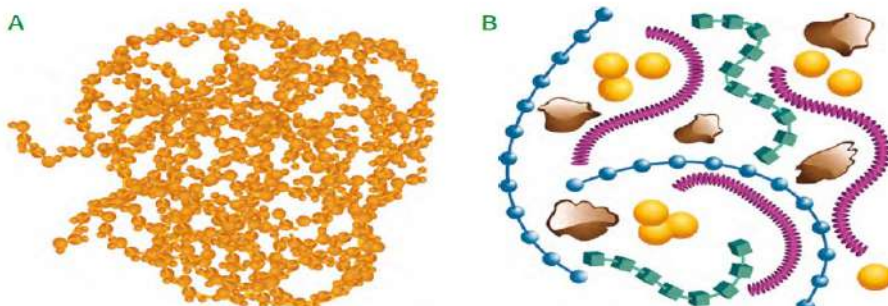


Humic substances can be found in all types of soils as they originate from the decomposition products of plants. It is divided by extraction into humic acid and fulvic acid. Where their salts are called humates and fulvic. Fertile soil contains humic acid, where it is present in a certain layer of soft brown coal, which has not yet reached the stage of lignite or coal transformation, in which humic acid can be found in a concentration of up to 85%. This soft brown coal bed is internationally called Leonhardites, which differs from soft brown coal with a higher oxidation rate and a higher content of humic acid. The main compound of all natural humic substances are humic acids, which contain humic acid and fulvic acid. Humic acids are an excellent natural and organic way to provide plants and soil with a concentrated dose of essential nutrients, vitamins and trace elements.



## Structural composition of humic matter:

The humus in its structural composition does not consist of long-chain humic substances as in Figure A, but of short-chain chemicals from a combination of different substances as in Figure B, which are cations (yellow), polysaccharides (blue), polypeptides (green), groups Aliphatic (lipid-like) (purple), aromatic lignin compounds (brown)



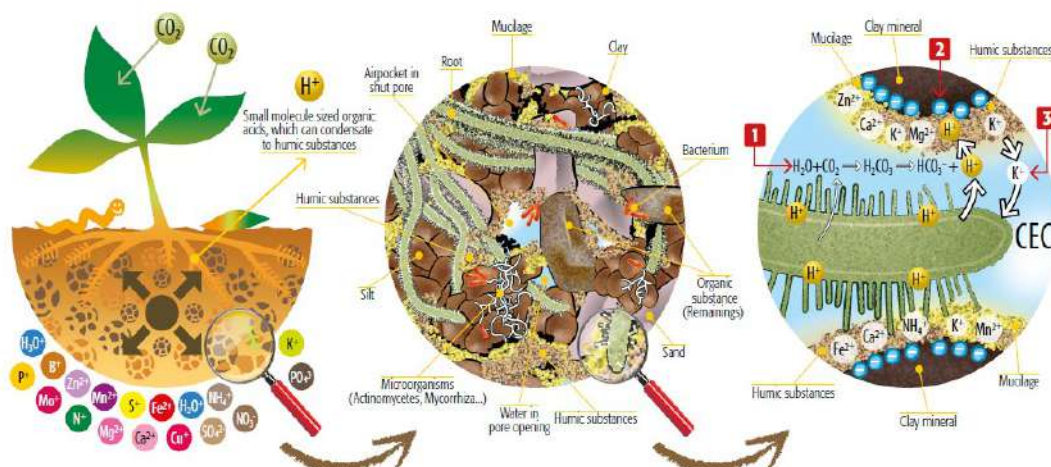
## Why Pow Humus is better than other organic fertilizers:

- Compared to other organic and humic materials, leonhardites is very rich in humic acids . While leonhardites is the final product of the 70-million-year-old decomposition process, and by comparing leonhardites to peat moss, for example, the formation period of peat moss in the soil is completed within only a few thousand years .
- Leonhardites differs in its molecular structure from the rest of the organic materials, which illustrates the highly bioactive properties of leonhardites. This biological activity is five times more potent than other organic and humic substances .
- Only one kilogram of paw humus is equivalent to 30 cubic meters of manure in terms of its humic acid content .
- Leonhardites works as a soil healer and as a bio stimulant for plants compared to other organic products .
- Leonhardites promotes plant growth in particular (green mass production) and greatly increases soil fertility .
- Another advantage of Leonhardites is its long-term effectiveness, as Leonhardites is not quickly consumed like compost, compost, or peat moss .
- Leonhardites is distinguished from those other organic fertilizers in that it does not consume soil nitrogen like it, as most of these fertilizers are incomplete decomposition and complete decomposition in the soil and thus consume large amounts of nitrogen that the plant needs to complete its growth stages .
- Leonhardites improves soil structure for up to five years, unlike other organic materials .

## How does Bau Humes raise cation exchange in alkaline soil:-

From the following figure, it is clear how much alkaline soil needs humic matter:

- 1) A cationic exchange of various positively charged nutrients occurs with the positively charged hydrogen proton present on the soil grains, where it replaces it on the grains.
- 2) Holding and binding positively charged nutrients to soil particles.
- 3) Gradual liberation of positively charged nutrients from soil granules and organic matter to the roots of plants and facilitating them for absorption.



## **Benefits of Pow Humus for the plant:**

- 1) Existing scientific studies show that soil fertility is largely determined by the humic acid content, and its high cation exchange capacity (CEC) , oxygen content as well as water holding capacity .**
- 2) The most important feature of humic acids is their ability to bind insoluble metal ions, oxides and hydroxides, slowly and continuously releasing them to plants when needed .**
- 3) Humic acids modify soil structure by preventing the loss of water and nutrients in light sandy soils. And at the same time turn it into a rich soil by decomposition .**
- 4) In heavy and compacted soils, the soil is improved by improving its aeration, water holding, preventing soil cracking, reducing surface water runoff, and preventing soil erosion by increasing the ability of colloids to aggregate .**
- 5) Increasing the soil's ability to retain water and thus helping to resist drought, especially in light sandy soils .**
- 6) It darkens the color of the soil and thus helps absorb the sun's energy .**
- 7) Adjusting the pH of acidic and alkaline soils .**
- 8) Improve plant absorption of nutrients and water .**
- 9) Increasing the storage capacity of the soil .**
- 10) It acts as a natural chelator for nutrients in alkaline soil conditions and enhances root uptake .**
- 11) Rich in organic and mineral substances necessary for plant growth .**
- 12) Retaining nutrients around the roots and thus reducing their loss with drainage .**
- 13) Raise the rate of cation exchange in the soil .**
- 14) Increasing the conversion of many nutrients such as (nitrogen - phosphorus - iron - potassium - zinc) and other trace elements into forms available for rapid absorption by plant roots .**
- 15) Enhancing plants absorption of nitrogen .**

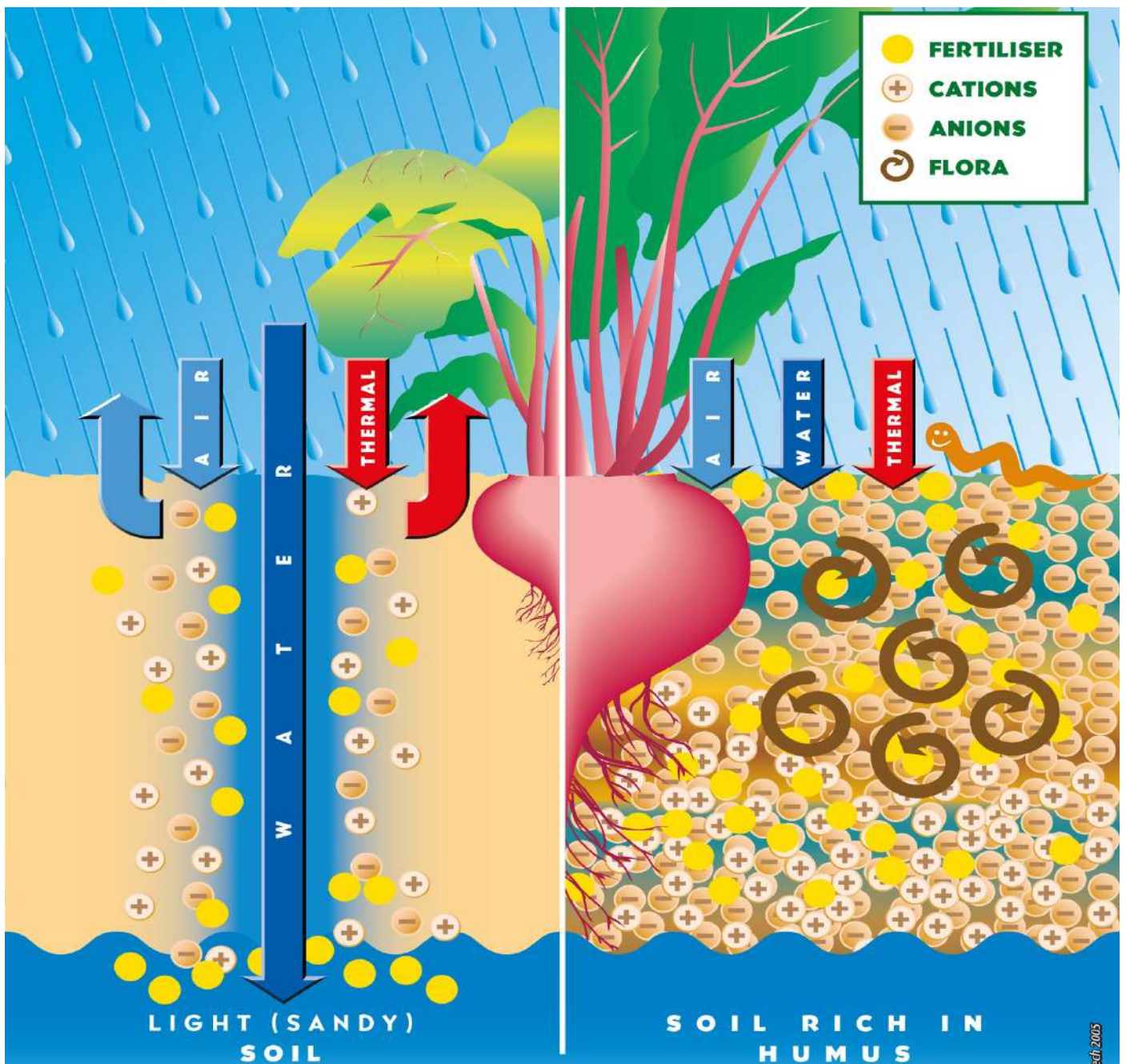


## Follow the Benefits of Pow Humus for the plant:

- 16) Reducing the interaction of phosphorus with the elements (calcium - iron - magnesium - aluminum) and providing it in a free and beneficial form for plants.
- 17) Freeing carbon dioxide from calcium carbonate in the soil and facilitating its use in the photosynthesis process.
- 18) Helps eliminate iron deficiency in plants.
- 19) Reducing the availability of toxic substances in the soil such as pesticide residues, heavy elements and other toxins.
- 20) Stimulating plant enzymes and increasing their production.
- 21) It acts as an organic catalyst in many biological processes.
- 22) Stimulating the growth and proliferation of desirable microorganisms in the soil.
- 23) Enhancing the plant's natural resistance against diseases and pests and raising its immunity.
- 24) Stimulating root growth, especially vertical ones, enabling better absorption of nutrients and increasing root respiration and building.
- 25) Promote the building of chlorophyll, the production of sugars and amino acids in plants, support the process of photosynthesis, and increase the content of plants of vitamins and minerals.
- 26) Increasing the thickness of the cell walls of the fruits, thus increasing the storage period and carrying the transportation.
- 27) Increasing the percentage of seed germination and increasing its vitality.
- 28) Stimulation of plant growth (higher green mass production) by accelerating cell division, resulting in higher dry matter yield.
- 29) Improving the quality of crops and fruits and their external appearance and raising their nutritional value.

**Benefits of Paw Humus for sandy soil :**

- 1) Humic acids provide nutrients and hold them around the roots in an easy-to-absorb form, and thus a high increase in productivity of up to 70% can be achieved, in addition to a reduction of up to 30% in the use of fertilizers and pesticides, as well as achieving better and healthier growth of vegetables, fruits, ornamental plants, landscapes and agricultural crops. the other .
- 2) The ability of the soil to retain water increases significantly, as it is noted that the water in the untreated soil has a rapid drainage and loss in the soil due to its rapid vertical movement downward, in contrast to the soil treated with pow humus water greatly .
- 3) These results can be obtained through the regular application of high quality Bao Humus .

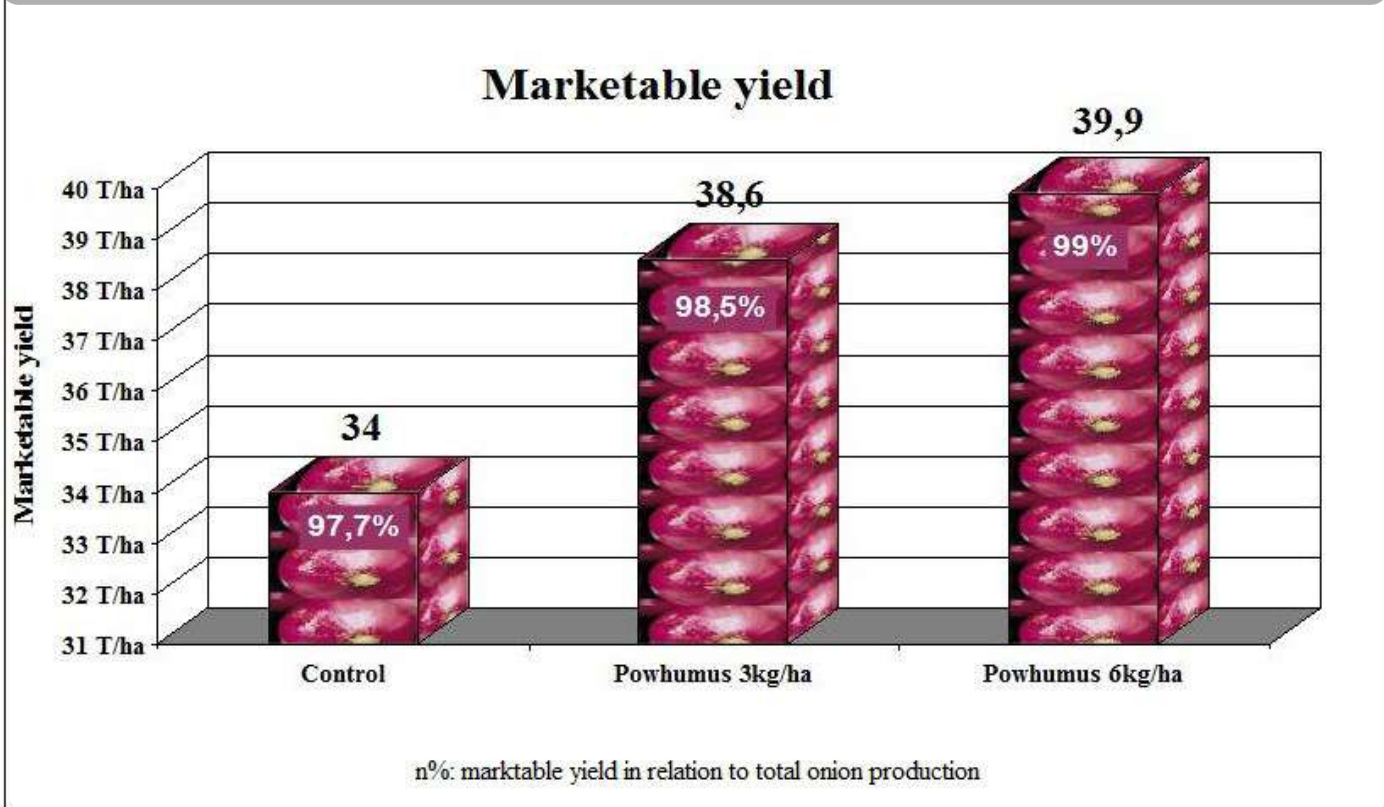




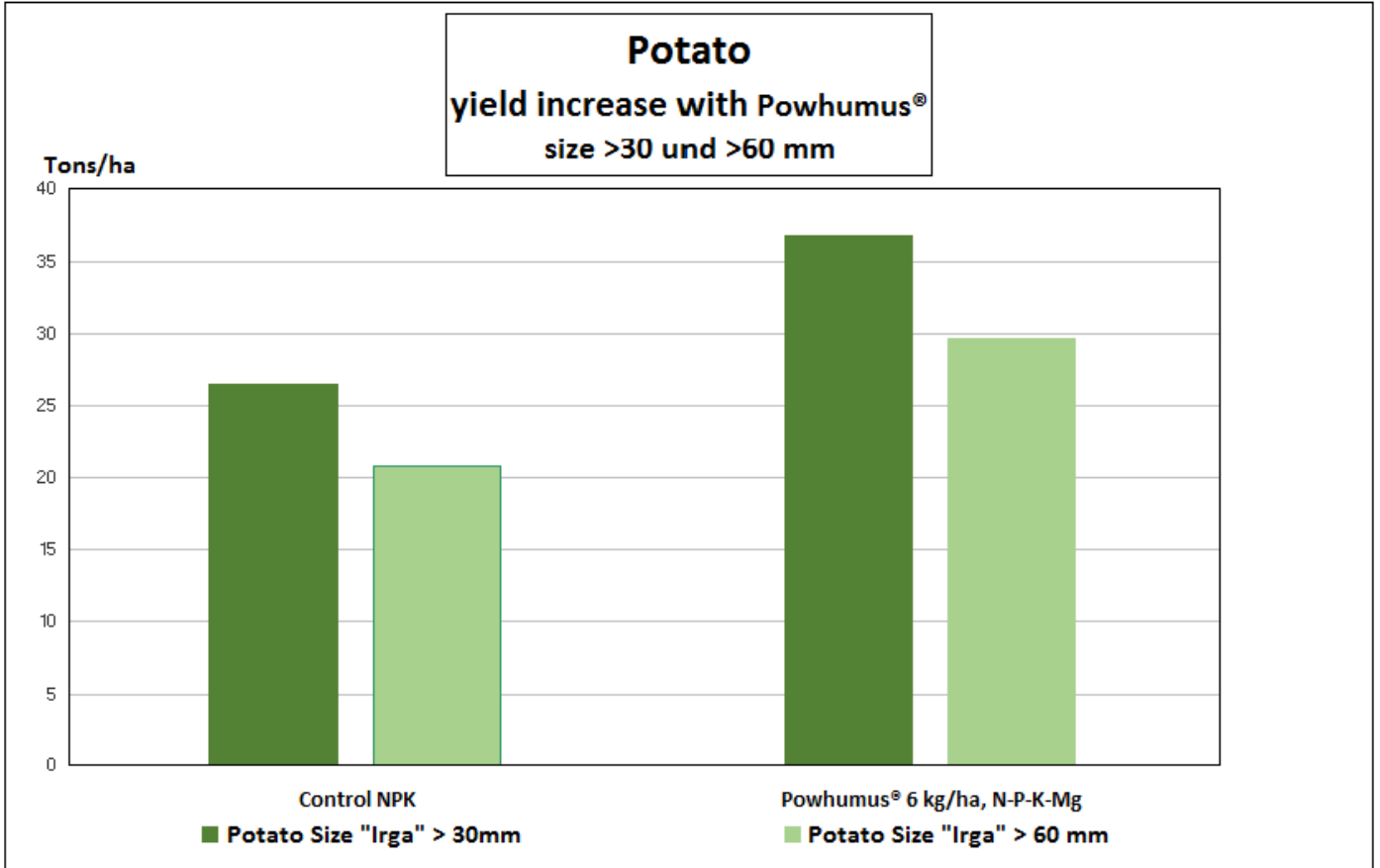
**Effect of pow humus on the root system of strawberry**



**The effect of pow humus on increasing the productivity of onion crop**



The effect of pow humus on increasing the productivity of potato crop





## Composition :-

Potassium Humates	Humic Acid + Fulvic Acid	Potassium	water content	Solubility in water	PH
% Potassium Humates	% Humic Acid + Fulvic Acid	% K <sub>2</sub> O	%	%	PH
<b>80</b>	<b>68 - 70</b>	<b>10 - 12</b>	<b>15</b>	<b>98</b>	<b>9.5 : 10</b>

## How to use and doses:

Crop	Doses	Usage	Notes
Drip irrigation	4 - 6 Kg / H / Year	In general	preferable to divide the quantity into batches
	6 - 8 Kg / H / Year	Sandy soils	
Trees	0.5 - 1 Kg / m <sup>3</sup> soil	Mix with sand or organic fertilizers directly on the surface or stir the soil to a depth of 10 cm	This treatment raises soil biological activity and humic acids
Foliar application	250 g / 1000 L	preferable to repeat 2 - 4 times per season / year	It is used alone or mixed with foliar fertilizers or pesticides
Seed treatment	10 - 20 g / 100 K seeds	Immerse the seeds for 10 minutes	To increase germination ratio

## Usage recommendations:

- 1) It can be used alone directly or mixed with other fertilizers .
- 2) It can be mixed with soluble or granulated fertilizers such as compound fertilizers and used in sprinkler, drip or immersion irrigation devices .
- 3) It is preferable to mix the required amount of pow humus with at least 5 liters of water, then add it to the mixing tank. It is recommended to test its ability to mix with other materials before using it .
- 4) Store in a dry place .
- 5) It is safe for health and the environment and is non-flammable, as it is extracted from an organic substance .

## Packing :

Pow Humus pro is available in packages of 25 kg .