

Potassium Humate is a highly effective natural organic fertilizer with complex action for all kinds of plants. This material has the highest content of active substance - salts of organic humic and fulvic acids. It also contains beneficial minerals and trace elements such as Si, Fe, Mg, S, Zn, Co, Cu and Mn. The raw material for the production of Humate is leonardite (highly oxidized lignite). There is the only producer in Ukraine with own unique leonardite mine who manufactures Humate with so high quality level.

Soil fertility must be restored by providing organic matter. The goal of this practice is to improve soil structure, soil biological activity, the ability to feed the plant and to increase the existence of competitive antagonists against soil-born pathogens. Practices that do not provide organic matter, lead to the degradation of the soil causing problems of erosion. Consequently, the soil loses its physical structure, its existing nutrients and its biological activity.

The application of Humates to the soil is an efficient way to increase the content of humic substances and thus of organic matter. The accumulation of humic substances in soils positively affect water holding capacity, temperature, pH range to improve nutrient availability (e.g. Fe, P), and health maintenance against soil-born diseases. It works as organic fertilizer, plant growth promotant, soil life activator and soil conditioner.

In addition, humic substances provide a loose soil structure due to the formation of a clay-humus complex in combination with clay minerals. Therefore, root development and water infiltration are improved so that erosion can be reduced. For instance, when plants are cultivated in slope and strong rainfall periods occur.

Advantages of Potassium Humate use:

- Quantitative and qualitative yield increases:
 - Increases productivity by 10-40% depending with plants species
 - Improves the quality of grown product due to its effect as plant growth stimulant
- Improved soil structure and workability
- Reduction of water demand up to 50% due to increased drainage and water penetration
- It helps plants survive stressful conditions
- Increases the efficiency of mineral fertilizers due to chelating and colloidalization of fertilizers and minerals, their used quantity can be decreased 20-30%.
- The economic effect is many times greater than the costs spent on the treatment by Humate.
- Can be combined with the treatment of fields with herbicides, fungicides, insecticides, reduces the stress of cultivated plants
- It is used in tank mixtures with foliar and root dressings, due of the lack of ballast substances it does not clog the spray nozzles
- Does not require the modification of existing agricultural technologies.

Characteristics of products

Potassium Humate			
Mass fraction of active substance in %:		Non GMO	
Humic and fulvic acids in a ratio of 3:1	K (Potassium)	pH	Natural and Organic
15%-18%	5%	10-11	100%
Appearance	Dark brown color liquid oily to the touch with specific light smell. The precipitate can occur slightly due long storage time that is easily soluble when agitated		

Chemical composition, % on dry substance	Elemental composition,% on dry substance								
Humic and fulvic acids and its salts	C	O	H	K	Na	S	Ca	Si	Fe
84-88	46-50	17-20	3-4	11-12	0,5-1	0,5	1-3	9-11	0,2
Solubility - 100%									

Application of Potassium Humate into the soil before plowing (cultivation) with 1 time per 4-5 years in dose 10-20 l/ha will significantly improve the soil structure and increase the crop stability regardless of natural factors such as drought, higher or lower average local temperatures, etc. More over in such stress conditions the Humate use leads to more significant improvement of the crop yield in comparison with crop yield improvement in favorable conditions.

The usage of Humate does not require changes in agricultural practices. Its usage is fully compatible with fertilizers and with most of the common plant protection products. However, for first use is recommended to test the mixing in a glass container. Do not mix concentrated solutions of disinfectants, fungicides, herbicides with humates without first preparing the mother liquor. It is necessary to pour the mother liquors of the preparations into the working container alternately with careful mixing of each portion.

TECHNOLOGIES OF HUMATE PROCESSING

CROP	TYPES OF PROCESSING	STANDARD DOSAGE FOR POTASSIUM HUMATE USE	AVERAGE INCREASE OF CROP
CEREALS AND GRAINS			
Winter and spring wheat, winter and spring barley, rye, oats, rice	Presowing seeds treatment	0,5 – 1.3 l/t	10-15% Also increasing of gluten content in wheat grain 2-4%
	1st spraying in the phase of tillering - beginning of stem elongation	1-1.5 l/ha	
	2nd spraying in the phase of flowering - early milk stage	1-1.5 l/ha	
Corn, sugar cane, peas, beans, lentils, chickpeas, soybeans	Presowing seeds treatment	0,5 – 1,3 l/t	10-15% Also increasing of protein content in beans 1-3%
	1st spraying in the sprouting phase - appearance of 3-5 leaves	1-2 l/ha	
	2nd spraying in the panicle stage (corn, sugar cane) – the beginning of flowering	1-2 l/ha	
Buckwheat	Presowing seeds treatment	0,5 – 1.3 l/t	10-15%
	1st spraying in the branching phase - the beginning of budding	1-1.5 l/ha	
	2nd spray in 10-15 days	1-1.5 l/ha	
INDUSTRIAL			
Sunflower seeds, rapeseed	Presowing seeds treatment	0,5 – 1.3 l/t	10-15%
	1st spraying in the phase of formation of 3-4 pairs of leaves	1.5- 2,5 l/ha	
	2nd spray in 10-15 days	1.5- 2,5 l/ha	
ROOTS			
Sugar beet	1st spraying in the phase of formation of 3-4 pairs of leaves	1- 2 l/ha	15-25%
	2nd spraying in the closing phase of the rows	1- 2 l/ha	
Potatoe	Presowing treatment of tubers	1 l/t	15-25%
	1st spraying in the phase of formation of 5-7 pairs of leaves	1- 2 l/ha	
	2nd spraying in the budding phase	1- 2 l/ha	
Carrot	Presowing seeds treatment	0,1-0,125 l/kg	15-25%
	1st spraying in the phase of formation of 2 pairs of leaves	1- 1,5 l/ha	
	2nd spraying 10-16 days	1- 1,5 l/ha	
VEGETABLES			
Tomato, pepper, eggplant	Presowing seeds treatment	0,1-0,125 l/kg	15-25%
	1st spraying in the phase of formation of 2-4 pairs of leaves	1- 1,5 l/ha	
	2nd spraying 10-15 days	1- 1,5 l/ha	
Cabbage, cucumber	Presowing seeds treatment	0,1-0,125 l/kg	15-25%
	1st spraying 3-5 days after transplanting	1- 1,5 l/ha	
	2nd spraying 10-15 days	1- 1,5 l/ha	
FRUIT AND BERRY			
Apple tree, cherry, pear, plum, grapes and all berries	1st spraying 5-8 days after flowering	1- 2 l/ha	20-30%
	2nd spraying in the phase of fruit or berries ripening	1- 2 l/ha	
CUCURBITACEAE melon field of culture			
Watermelon, melon, pumpkin	Presowing seeds treatment	0,1-0,125 l/kg	20-40%
	1st spraying 3-5 days after transplanting	1- 1,5 l/ha	
	2nd spraying 10-15 days	1- 1,5 l/ha	

Water for Humate diluting should be above 20⁰C, it is advisable to use soft water.

Presowing seeds or cuttings treatment is highly desirable to increase the percentage of seed germination and its acceleration. Can be done with seeds soaking in Humate solution previously diluted (Humate concentration should be less 2%) during several hours or by spray application to the seeds.

For soil spray application the required Humate amount (10-20 l/ha) is diluted in 200-500 liters of water at least per hectare. Its use can be combined with mineral fertilizers application.

For foliar spraying the required amount of Humate is diluted in 500-1000 liters of water at least per hectare. Foliar spraying is best to be done early in the morning or in the evening to avoid sun burns of leaves.

The amount of plants treatments by the Humate can be more than the recommended one. It depends on the quality of the planting material, field treatments, fertilizers, climatic conditions, and soil conditions.