

humicgrow **zerebra**

organic additives with
fungicidal and pesticidal
effects

humicgrow 

PREPARATION

To increase crop yield & improve product quality.

The mechanism of action of the preparation is based on growth stimulating, fungicidal and synergistic effects. The nature of these effects is in the ability of active substances - colloidal silver and activating polymeric additives - to form in plants nonspecific, systemic, long-lasting resistance to fungi and bacteria, as well as to stimulate growth and biological processes. This ability beneficially influences the increase of the yield and quality of products.

The growth stimulating effect is observed in reduction of the negative impact of pathogenic microflora, stimulation of recovery processes and improvement of energy metabolism in plant tissues, as well as in activation of natural protective functions of a plant.

The fungicidal effect inhibits and partially destroys pathogenic organisms mainly due to colloidal silver, a natural antiseptic, which is a part of the preparation. Silver nanoparticles undergo slow oxidative dissolution in the vicinity of bacteria and fungi, causing death of the pathogens by disrupting the cellular membrane permeability and microbial cell metabolism. It is important to notice the inhibition of bacterial diseases against which the known plant protection products work ineffectively.

The synergistic effect is prolonged and enhanced action of chemical fungicides: the application of HG Zerebra reduces the consumption rate of chemical fungicides to the minimum regulatory recommendations as suppresses harmful objects like after an application of a maximum dose of the preparation.

Bacterial properties of silver have been known since ancient times and as a natural biocide for over a hundred years. One problem with the use of this metal is that the silver in nature is not stable. The composition of HG Zerebra, thanks to modern technologies, implements a stable activity of silver. The silver colloids kill bacterial and fungal infections by blocking its breathing and eating and also transportation of metabolites across the cell wall, causing irreversible structural damage of pathogenic cells at the level of the cytoplasmic membrane and cytoplasm of nucleotides.

PREPARATION

ACTIVE SUBSTANCES:

Colloidal silver 500 mg / L + polyhexamethylene iguanide hydrochloride 100 mg / L

FORMULATION:

Water solution.

SELECTIVITY:

Preparation is effective in application on many tropical crops including rice, banana, tomato, potato, soya, sugar cane, salad and herb, grass, corn and with trees like oil palm, rubber, teak, bamboo, coconut and mango.

RESISTANCE:

No cases of resistance have been observed.

VARYING CROPS IN CROP ROTATION:

Does not affect the variation in crop rotation.

COMPATIBILITY:

The preparation is compatible with local herbicides, fungicides and insecticides.

TOXICITY:

The preparation used in recommended concentrations and in accordance with proposed application method has no phytotoxicity.

RESULTS

- Enhancement of seed vigor
- Uniformity of seedlings
- Activation of a strong root system development
- Productive growth and development of vegetative plant mass
- Effective inhibiting the development of fungi and bacteria
- Strengthening the immune system of plants and stress reduction
- Improving product quality
- Yield increase

RESULTS



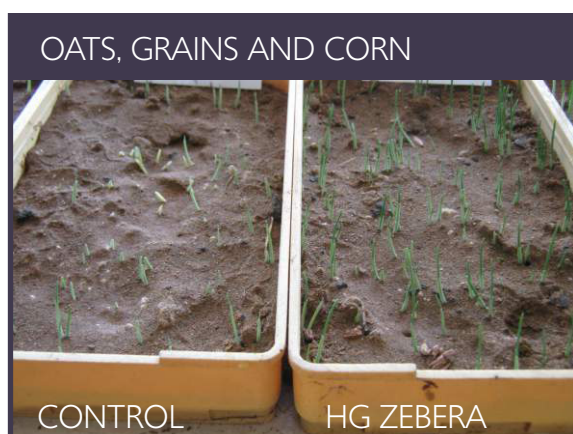
10-15%
POWER OF
SEEDS

7-9%
GERMINATION



50-60%
LENGTH OF
SHOOTS AND
ROOTS

25%
RESPIRATORY
ACTIVITY



60- 80%
BIOMASS
ACCUMULATION

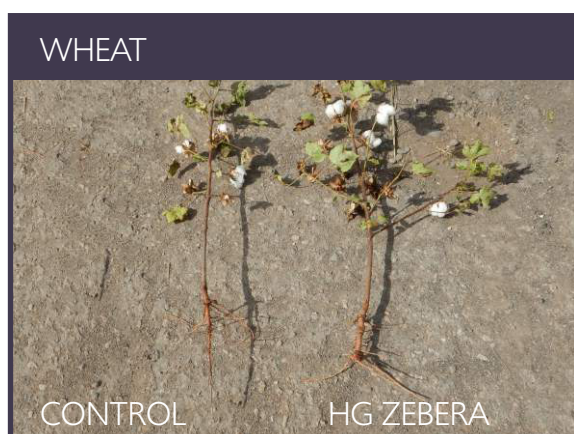
UNIFORMITY OF SEEDLINGS



- Seedlings appear simultaneously
- Active growth and development of seedlings
- Leaves develop more intensively
- No differences in plant height



PRODUCTIVE GROWTH AND DEVELOPMENT OF WHEAT AND GRASSES



11-17%
VEGETATIVE
MASS

- Active growth and development of vegetative mass
- Enlarged assimilative leaf surface
- Dynamic branching and tillering processes
- Increased photosynthetic leaf activity

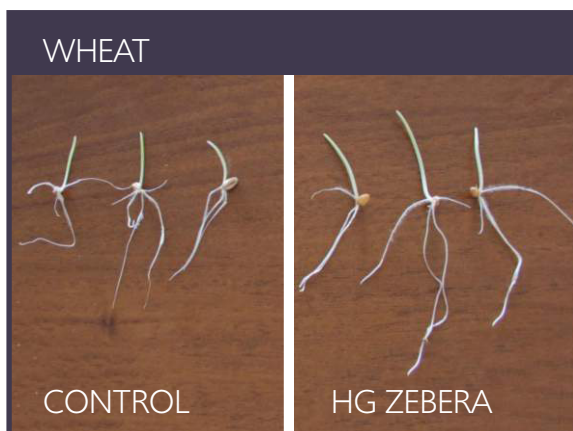
ACTIVATION OF A STRONG ROOT SYSTEM DEVELOPMENT



50-60%
INCREASED
ROOT LENGTH



- Additional roots form intensively
- Roots become thicker
- Secondary root system develops actively
- Absorption capacity of roots increases



EFFECTIVE INHIBITING OF THE DEVELOPMENT OF FUNGI AND BACTERIA



Alternaria solani growth in the absence of HG Zerebra



Alternaria solani growth in the presence of HG Zerebra



- Reduced disease damage
- Increased resistance to Stress factors



STRENGTHENING THE IMMUNE SYSTEM OF PLANTS AND STRESS REDUCTION

CORN



- Strengthening the immune system of plants
- Decrease of the damage caused by diseases
- Increase of resistance to stress factors: frost, drought, high temperature
- Reduction in pesticide load

BUCKWHEAT



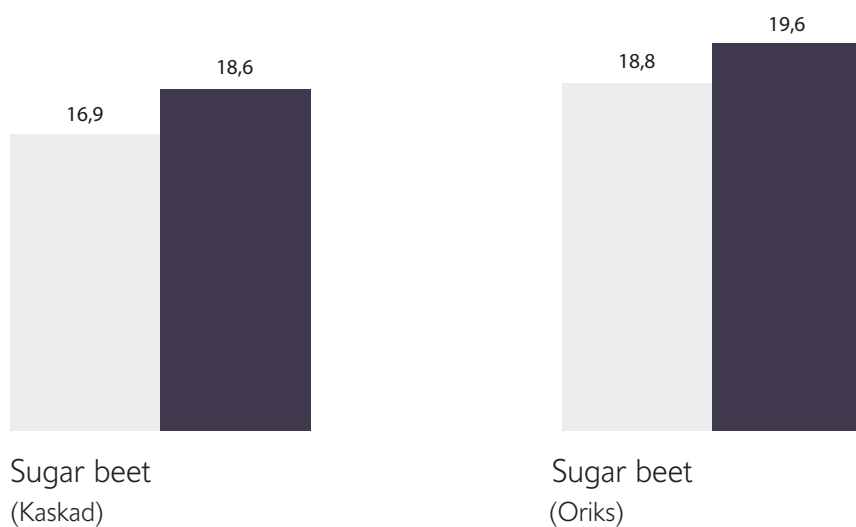
SOY



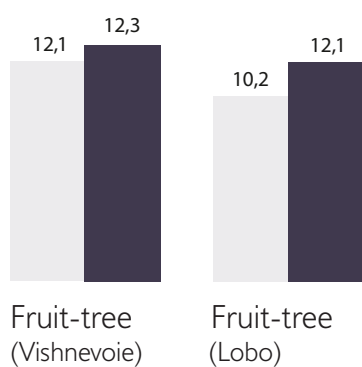
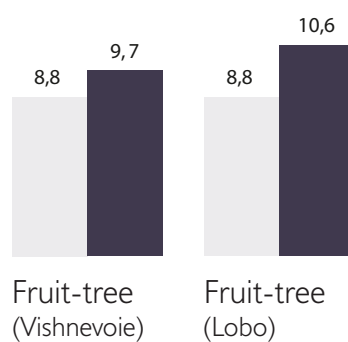
IMPROVING PRODUCT QUALITY

Increases oil content by 3%

Sugar content %



Total sugar content %

Ascorbic acid, mg, %
(vitamin C)

CONTROL

HG ZEREBRA

YIELD INCREASE **WHEAT AND RICE**

7-30%
YIELD INCREASE



Sort, hybrid	Yield, hwt/ha Increase		Increase to control %
	Control	HG Zerebra	
Kalym	54,2	58,7	8,3
Moskvich	50,7	59,1	16,6
Moskovskaja 39	31,1	33,3	7,1
DonEko	39,2	42,3	7,9
Kollega	45,1	48,2	6,9
Zelenogradka 11	17,9	23,3	30,2

YIELD INCREASE **BARLEY, RICE, CORN, MILLET, GRAINS,
OATS, COTTON**



3-15%
YIELD INCREASE



Sort, hybrid	Yield, hwt/ha Increase		Increase to control %
	Control	HG Zerebra	
Chakinskii 221	25,0	25,7	2,8
Danuta	31,2	34,4	10,3
Vorsinskii	7,4	8,5	14,9
Margaret	48,44	49,8	2,9

YIELD INCREASE **SUNFLOWER, CEREALS, SUGAR CANE**

8-28%
YIELD INCREASE



Sort, hybrid	Yield, hwt/ha Increase		Increase to control %
	Control	HG Zerebra	
Yenisei	11,4	14,6	28,1
Kubanskii 930	26,8	29,0	8,2
Kulundinskii	7.5	8,8	17,3

YIELD INCREASE **BEAN CULTURES**

7-19%
YIELD INCREASE



Sort, hybrid	Yield, hwt/ha Increase		
	Control	HG Zerebra	Increase to control %
Yenisei	11,4	14,6	28,1
Kubanskii 930	26,8	29,0	8,2
Kulundinskii	7,5	8,8	17,3

YIELD INCREASE **POTATO, CARROTS, OKRA, TOMATOES, CUCUMBER, PUMPKIN**



19-34%
YIELD INCREASE



Sort, hybrid	Yield, hwt/ha Increase		Increase to control %
	Control	HG Zerebra	
Meteor	302,0	359,0	18,9
Adretta	178,8	231,9	29,7
Udacha	297,0	397,0	33,7
Alvara	174,8	221,7	26,8

YIELD INCREASE **SUGAR BEET, SALAD, HERBS AND GRASSES**

20-24%
YIELD INCREASE



Sort, hybrid	Yield, hwt/ha Increase		Increase to control %
	Control	HG Zerebra	
Kaskad	344,0	426,0	23,8
Oriks	366,6	441,4	20,4

YIELD INCREASE **FLOWERS AND OATS**

9-29%
YIELD INCREASE



Sort, hybrid	Yield, hwt/ha Increase		Increase to control %
	Control	HG Zerebra	
Colza «Tavrion»	16,5	21,3	29,1
Colza «Ratnik»	14,8	18,0	21,6
Colza «ANIISKh 4»	11,5	12,5	8,7
Buckwheat «Natasha»	8,9	10,5	18,0

YIELD INCREASE **FRUIT TREES AND BERRIES**

9-29%
YIELD INCREASE

Sort, hybrid	Yield, hwt/ha Increase		Increase to control %
	Control	HG Zerebra	
Apple-tree «Martovskoie»	265,0	350,0	32,1
Apple-tree «Vishnevoie»	210,0	246,0	17,1
Apple-tree «Lobo»	280,9	291,3	3,7
Grape «Dmitrii»	80,5	101,0	25,5

COOPERATION WITH SCIENTIFIC INSTITUTIONS

Lomonosov Moscow State University

SSI All-Russian Research Institute of Agrochemistry by D.N.Pryanishnikov, Moscow

Centre "Bioengineering", RAS, Moscow

SSI All-Russian research institute of potato farming by A.G.Lorh, Moscow

SSI All-Russian Breeding and Technological Institute of Horticulture and Nursery Growing of the Russian Academy of Agricultural Sciences, Moscow

SSI Moscow Research Institute of Agriculture "Nemchinovka" of the Russian Academy of Agricultural Sciences, Moscow

Federal State Institution "Centre of Agrochemical Service "Kaliningradskii", Kaliningrad

All-Russian Research Institute of Biological Plant Protection, Krasnodar

Kuban State Agrarian University, Krasnodar

FSBSI All-Russian Research Institute of oil crops by V.S. Pustovoi, Krasnodar

FSBSI Nizhne-Volzhskiy Scientific-Research Institute of Agriculture, Volgograd region

SSI All-Russian Research Institute of maize of the Russian Academy of Agricultural Sciences, Stavropol region

FSSI Stavropol Research Institute of Agriculture, Academy of Agricultural Sciences, Stavropol region

SSI Belgorod Research Institute of Agriculture of the Russian Academy of Agricultural Sciences, Belgorod

SSI Voronezh Research Institute of Agriculture by V.V. Dokuchaev of the Russian Academy of Agricultural Sciences, Voronezh region

SSI All-Russian Research Institute of leguminous and cereal crops Orlov region

FSSI All-Russian Research Institute of colza, Lipetsk

FSSI All-Russian Research Institute of gardening Tambov region

Ryazan State Agrotechnological University by P.A. Kostychev, Ryazan

FSSI Bashkir Research Institute of Agriculture of the Russian Academy of Agricultural Sciences, Ufa

FSSI Altai Research Institute of Agriculture of the Russian Academy of Agricultural Sciences, Barnaul

FSSI Kurgan Research Institute of Agriculture of the Russian Academy of Agricultural Sciences, Kurgan

SSI All-Russian Research Institute of soy, Amur region

Research Institute of Plant Physiology and Genetics of Academy of Sciences of the Republic of Tajikistan

Research Institute of Biotechnologies of the Tajik Agrarian University, the Republic of Tajikistan