# SUNFLOWER YIELDS DEATH FROM THE APPLICATION OF GROWTH REGULATORS IN THE CONDITIONS OF THE FOREST-STEPPE OF THE WEST

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Gross harvest of sunflower seeds does not provide the existing capacity of the domestic oil industry, therefore the question remains to find ways to further increase the yield of this crop. The solution of the problem is possible due to the improvement of existing elements of sunflower cultivation technology, including through the use of plant growth regulators, especially those made on a humic basis.

The influence of humic fertilizers on plants has a complex multistage nature and covers the entire period of vegetation. With the humic substances in plants gets a certain amount of nutrients - nitrogen, phosphorus, potassium, calcium, sulfur and other minerals, and amino acids, vitamins and growth substances. Getting into the plant, humic substances activate the enzymatic activity of all plant cells and the formation of stimulating compounds by the plant itself. As a result, the growth of cell energy, the change in the physical and chemical properties of the protoplasm, the intensification of metabolism. Increases the permeability of the membrane of the root cells, improves the penetration of mineral nutrient elements from the soil solution to plants in the form of humic-mineral compounds. This leads to increased absorption of nutrients by the plant. In addition, due to humates, the addition of sugar, amino acids, vitamins, hormones to the plant improves.

The use of growth regulators allows to more fully realize the potential of plants, laid by nature and breeding, to regulate the maturing, to improve the quality of products and to increase the crops of agricultural crops, and in the Ukrainian market there is a significant number of them. At present, more than 50 regulators and liquid

organic fertilizers with growth stimulating substances manufactured on a humic basis have been registered in the State Register of Pesticides and Agrochemicals Permitted for Use in Ukraine. Among them - humic complex biological products "Vermymah" and "Vermyyodis" production PE "Bioconversion" which besides ristrehulyuyuchyh substances containing incorporates micro and macronutrients, vitamins, plant hormones and other substances - all that is needed for initial growth and increased frost Plants, and most importantly - contain a large number of useful microorganisms. In addition, the drug "Vermimag" contains up to 4% of magnesium, and "Vermiodex" - a biological iodine

Due to its unique properties, the new natural humic growth regulators "Vermimag", "Vermiodis" increase the energy of the plant cell, stimulate the processes of life, increase the useful effect of other substances.

However, in the conditions of the Forest-step of the Western study on the influence of plant growth regulators "Vermimag" and "Vermiodis" on the yield of sunflower seeds is not enough. Therefore, the study of the effect of these drugs on the growth and development of sunflower for pre-sowing seed treatment and one-two-time spraying of plants during vegetation is relevant.

The aim of the study was to study the effect of growth regulators "Vermymah" "Vermyyodis" for preplant treatment of seeds and single and double spraying of plants during the growing season on the growth, development and yield of hybrid sunflower HP Brio under steppes of Western.

Methods of general scientific research: field, laboratory, mathematical-statistical, comparative-calculation

The research was conducted during 2013-2016 years on experimental field branch of the department of crop and forage production Podolsky State Agricultural and Technical University of PF "Bogdan and K" Snyatynsky district of Ivano-Frankivsk region, situated in the western part of the Forest. Soil on the experimental site of turf, podzolized, medium-gravel, arable layer are characterized by the following agrochemical parameters: the content of alkaline hydrolysed nitrogen - 72 mg / kg; Mobile phosphorus - 124 mg / kg; Exchangeable potassium - 113 mg / kg; PH of a salt

is 4.54; Humus content - 3,39%. Weather conditions in the years of the research differed, which made it possible to assess the influence of growth regulators on the growth and development of sunflower plants.

The results of the research carried out during 2013-2016 found that the growth regulators of plants "Vermimag" and "Vermiodis" intensified the basic processes of plant life of sunflower. In the variants of pre-sowing seed treatment and single-time spraying during vegetation of plants by growth regulators "Vermimag" and "Vermiodis", the yield of the crop increased by 10,6%, for pre-planting of seeds and double spraying - by 14,2-16,4% compared to the control . In the version for seeding of "Vermiiodis" seed (4 l / ton) and two-time spraying of plants for sunflower hybrid HP BRIO the growth regulator "Vermiodis" in the dose of 4 l / ha received the highest yield - 3.70 tons / ha, or 0, 52 t / ha more than the control.

Application of Growth Regulators "Vermimag" and "Vermiodis" makes it possible to more fully realize the genetic potential of plants, to regulate the periods of ripening, to increase the yield of the crop and to improve the quality of the products. Their use is an important part of the system of agrotechnical measures for the care of crops. The use of biologics does not require additional costs, except, of course, their own value, therefore their application contributes not only to the increase of gross production, but also to the reduction of its cost, which is especially important in market conditions.

Solving the problems of increasing the efficiency of sunflower production is being addressed by many scientists, in particular V.G. Andriychuk, V.I. Boyko, M.Ya. Malik, LO Marmul, VV Krestyaninova, P.T. Sabluk, O.M. Shpichak, O.O. Cherednichenko and others, but despite the large number of studies and numerous publications, the question of the efficiency of sunflower production requires further research in the light of constantly changing business conditions.

**Key words:** plant growth regulators, "Vermimag", "Vermiodis", growth and development, yield, quality.