

EFFECT OF PLANT GROWTH STIMULANTS ON BIOMETRIC PARAMETERS AND YIELD OF CORN IN THE NORTHERN STEPPE

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The purpose of the research is to study the effect of different growth-regulating substances (Vympel 2, Alpha Nano Grow, Avantgarde Grow Amino, Avantgarde Grow Humate) on photosynthetic activity, growth and development, and productivity of corn plants of different maturity groups in the conditions of the Northern Steppe of Ukraine. To identify the most effective plant growth stimulants on corn that ensure the acceleration of growth and development of the crop, increase resistance to extreme temperature conditions, increase the development of the leaf surface, increase the protein content of corn grains, increase the chlorophyll content that will ensure an increase in the level of the crop's productivity potential, effective use of material and technical and agroclimatic resources.

Field research was conducted in the scientific research field of the scientific and educational center for practical training of the Dnipro State Agrarian and Economic University during 2020–2022. General scientific research methods were used, the main ones of which were: field – to study the interaction of corn hybrids of different maturity groups and growth regulators with biological and abiotic factors; measuring and weighing – for identification of dynamics of growth, biometric measurements, determination of the elements of the crop structure and grain yield; mathematical statistics method: dispersion and correlation, etc.

The use of plant growth stimulants increased the height of corn plants by 3–8 cm (1,4–3,7 %) compared to the control (without treatment), especially when sprayed with the Avantgarde Grow Humate stimulator (1,0 L/ha) – 223–225 cm. There was also a tendency to increase the number of leaves (by 3,5–5,6 %) and the area of leaves (by 5,3–28,3 %) under the action of growth stimulants without a significant difference between the formulation used.

All the used plant growth stimulants had a significant effect on the content of chlorophyll (SPAD units), in particular, on the hybrid DN Pyvykha FAO 180 – 8,1–9,1 units (17,9–19,6 %), DN Khortytsia FAO 240 – 9,2–12,8 units (18,2–23,7 %), DN Julia 340 MV FAO 340 – 2,3–6,6 units (4,6–12,2 %), DN Olena 440 MV FAO 440 – 1,5–6,0 units (3,1–11,3 %). A trend of growth in chlorophyll content was noted

when applying Avantgarde Grow Amino – 1,5 L/ha and Avantgarde Grow Humate – 1,0 L/ha compared to Vympel 2 – 0,5 L/ha and Alpha Nano Grow – 50 ml/ha.

Higher indicators of the content of chlorophyll in the leaves contributed to an increase in the level of yield in the early-season hybrid DN Pyvykha FAO 180 by 0,12–0,36 t/ha (2,6–7,6%), middle-early DN Khortytsia FAO 240 – 0,84–1,07 t/ha (16,5–18,4 %), mid-season DN Julia 340 MV FAO 340 – 0,19–0,2 t/ha (3,19–3,3 %), middle-late DN Olena 440 MV FAO 440 – 0,04–0,5 t/ha (0,64–7,5 %).