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BIOLOGICAL REQUIREMENTS OF CORN HYBRIDS TO GROWING CONDITIONS IN THE WESTERN FOREST-STEPPE

Corn is the most important food, feed and technical crop, which determines the strategy for the development of the country's grain balance and its export potential. In the food sense, this culture is rich in protein, fat, nitrogen-free extractive substances, in the feed – is a valuable concentrated feed with a high content of digestible protein. The sown area in Ukraine (2014–2016) reached more than 4,0 million hectares, the yield was 6,0–6,5 t/ha, and the gross yield was 23,5–28,5 million tons.

One of the limiting factors affecting the productivity of corn is the temperature regime above 10 °C and the amount of precipitation. For the Forest-Steppe zone, the amount of FAR should be 1491 MJ/m^2, the annual precipitation – 547–632 mm. To reduce the risks of grain shortages caused by the influence of adverse weather factors in each farm, it is necessary to grow 2–3 hybrids of different groups of ripeness. The heating regime during the growing season (amounts above 10 °C) for biotypes of the early ripening group is 2100 °C, mid-early – 2200, mid-season – 2400, medium late – 2500, late-ripening – 2700 °C. For the zone of the Forest-Steppe, a scientifically based ratio of groups of ripeness was established: early ripe – 35 %, medium early – 55, medium ripe – 10 %.

The nutrition system of corn plants consisted of ensuring optimal levels of plant nutrients at each stage of their growth and development. Fertilizers are the main and inalienable means in the process of increasing yields and product quality, only with the full range of elements can the genetic potential of a particular variety or hybrid be realized. At the present stage of development of agricultural technologies, there are at least two ways to ensure optimal mineral nutrition of plants, namely, root and foliar. The first method is the most traditional and includes the technology of the optimal rate of the necessary elements in the soil that ensures maximum consumption through the root system. The average utilization of macroelements from fertilizers is 50 % nitrogen, 15 – phosphorus, 60 % –

potassium. Foliar top dressing, as an element of addition to the main one, is becoming more and more expansion, especially in intensive technologies.

The foliar nutrition of chelated forms of micronutrients, which is quickly incorporated into the synthesis of organic substances in the tissues of the leaf, or transferred to other organs and used in metabolism, is of particular relevance. Recommended application rates of mineral fertilizers for the Forest-Steppe zone on podzolized chernozem are $N_{60–90}P_{60–90}K_{60}$, gray and dark gray soils – $N_{80–120}P_{60–90}K_{60–90}$, with microelements the greatest need for magnesium and calcium (6 – 10 kg), 3–4 kg – sulfur, 11 g – boron, 14 – copper, 110 – manganese, 0,9 – molybdenum, 85 – zinc and 200 g – iron.