

Секція 5.

РОСЛИННИЦТВО ТА ЗЕМЛЕРОБСТВО

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FORMATION OF STRUCTURAL COMPONENTS OF WINTER DURUM WHEAT DEPENDING ON THE FERTILIZER SYSTEM

Durum wheat (*Triticum durum* Desf.) is an economically important crop cultivated worldwide for producing quality pasta products. This crop takes up approximately 8% of the world's wheat production. Within the EU durum wheat represents 13.2% of the total area and 9.2% of the wheat production. In 2017, it was grown on 2.7 million hectares only in the European Union (EU), providing an output of about 9 million tons. The cultivation area of durum wheat in Europe is mostly concentrated in the Mediterranean region: Italy, Spain and France together account for 80% of the total EU production (European Commission, 2018). Italy is the top EU producer country and a traditional durum wheat growing region as it dedicates half of the total EU durum wheat area to this crop, thus accounting for 45% of the entire EU production, with a yield of about 3.2 t.ha⁻¹. In recent years Bulgaria has increased the grain production of this crop and increased the consumption of products made from durum wheat (Panayotova et al., 2021).

The stationary field experiment was carried out at the Uman National University of Horticulture (certificate of the National Academy of Agricultural Sciences No. 87) (Stationary field experiments of Ukraine, 2014) in the Right-Bank Forest Steppe of Ukraine with Greenwich geographical coordinates 48° 46' of northern latitude and 30° 14' of eastern longitude. The scheme of the experiment includes 11 variants of combinations and separate applications of mineral fertilizers including the control variant without fertilizers.

The individual productivity of winter durum wheat varies significantly depending on the fertilizer system in crop rotation, the effectiveness of which is determined by the weather conditions of the growing season. Stem density, tillering coefficients increase significantly from the application of complete fertilizer. Versions of the experiment with incomplete return to the soil of phosphorus and potassium removed with crops do not significantly affect the structure of the crop. The number of productive stems increased from 291 pcs/m² in the version without fertilizers to 338 pcs/m² or by 16%

for prolonged use of N75 in field crop rotation and to 397 pcs/m², or by 36% for N₁₅₀. In the version with prolonged use of N₇₅P₃₀K₄₀, this figure was 19%, and with the application of N₁₅₀P₆₀K₈₀ – 43% higher compared to unfertilized sites. Prolonged use of nitrogen-potassium and nitrogen-phosphorus fertilizer system in terms of the impact on the structure of the crop was at the level of the N₁₅₀ application option. The number of productive stems in versions with incomplete return to the soil of phosphorus and potassium removed with crops was at the level of the variant with complete fertilizer (N₁₅₀P₃₀K₄₀). The highest tillering coefficient was in the phase of plants entering the tube – 2.00–2.07, and by the end of the growing season it was decreasing. The lowest coefficient of productive tillering was at fully ripe stage of grain – 1.09–0.54 depending on the fertilizer system. The tendency to influence this indicator was similar to the density of stems.

Application of 75 kg a.i./ha of nitrogen fertilizers increases the weight of grains and their number in one ear. Increasing their dose up to 150 kg a.i./ha reduces the productivity of the ear. The weight of 1000 grains decreases for all fertilizer systems in crop rotation, but remains very high (≥ 35 g). On average over two years of research it was found that the weight of grain from one ear increased from 1.51 g in the version without fertilizers to 1.63 g or by 8% with prolonged use of N₇₅, and decreased to 1.45 g, or by 4% in the version of application of 150 kg a.i./ha of nitrogen fertilizers. Prolonged use of N₇₅P₃₀K₄₀ did not affect this figure compared to the option of applying only 75 kg a.i./ha of nitrogen fertilizers. In the N₁₅₀P₆₀K₈₀ version, the grain weight from one ear was at the control level. The weight of 1000 grains of winter durum wheat in unfertilized sites was 43.0 g, and with the application of nitrogen fertilizers was 41.0–41.7 g. In 2020, the weight of 1000 grains was greater – 41.5–43.3 g, while in 2021 – 40.3–42.6 g, depending on the version of the experiment. Grain yield was most affected by the nitrogen component in the fertilizer system.

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ВПЛИВ КОМБІНОВАНОГО ЗАСТОСУВАННЯ ФУНГІЦИДІВ І МІКРОДОБРИВ НА РОЗВИТОК ГРИБНИХ ХВОРОБ ЛИСТКІВ БУРЯКА КОРМОВОГО

У сучасних умовах інтенсифікації аграрного виробництва зростає потреба у впровадженні ресурсозберігаючих технологій, спрямованих на підвищення ефективності вирощування кормових культур. Однією з провідних у структурі кормових посівів є буряк кормовий, який віді-