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THE ROLE OF THE CLIMATE-SENSITIVE TRAITS OF FUNCTIONING EFFICIENCY OF THE LEAVES PHOTOSYNTHETIC MACHINERY IN THE FORMATION OF WINTER WHEAT GRAIN PRODUCTIVITY UPON CONDITIONS OF BIOLOGICAL FERTILIZERS SYSTEMS

The data on adaptive responses of climate-sensitive agroecological indicators of energetic metabolism into donor top leaves of winter wheat (average ratios of net/true photosynthesis – N/T, respiration/true photosynthesis – R/T) during the phases of ontogenesis booting – flowering upon conditions of biological fertilizers systems (BFS) are presented. By means of methods of the three-dimensional correlation analysis studied the relationships between the values of N/T, R/T into leaves, and ear productivity of winter wheat (dry matter content into the ear m_{Sg}; full maturity) under actions of BFS.

It was established, that the increases of grain productivities under the influences of basic traditional and alternative fertilizers systems, concerning to control, accompanied by an magnification ratios N/T, a decrease R/T into the top leaves of winter wheat during phases of ontogenesis booting – flowering ($N_{60}P_{90}K_{90}$, straw + $N_{30}P_{45}K_{45}$; variants 2, 3, respectively, versus variant 1). The appropriate partial coefficients of correlation are: $r_{xy(z)}$ = 0,86–0,93 (comparison m_{Sg} – N/T), $r_{xz(y)}$ = 0,67–0,72 (m_{Sg} – R/T), p = 0,933 – P < 0,050. Improvements of grain productivity upon actions of BFS of block I, based on $N_{60}P_{90}K_{90}$, compared with the corresponding basic traditional fertilizers system, caused mainly by increases R/T, and to a lesser extent, by oppositely directed changes of N/T, into the plants top leaves during the accounting period (var. 4–8, versus var. 2). The partial coefficients of correlation of mentioned comparisons represents: $r_{xy(z)}$ = 0,65–0,81, $r_{xz(y)}$ = 0,86–0,90, p = 0,915 – P < 0,100. Increasing of ears productivities under the influences of BFS of block II, based on straw + $N_{30}P_{45}K_{45}$, compared with the corresponding basic alternative fertilizers system, are due to increases N/T, and does not depends on a concomitant reductions R/T into donor plants leaves during booting – flowering (var. 11 – 15 versus var. 3). The partial coefficients of correlation of these comparisons: $r_{xy(z)}$ = 0,84–0,92, $r_{xz(y)}$ = -0,130–0,68, p = 0,197 – P < 0,050.

The adaptive adjustments of energetic metabolism at the basics of traditional and alternative fertilizers systems, as well as under influences of BFS of block II, focused mainly on minimizing unproductive losses, growth intensification, accumulation of assimilates, that in the next phases of ontogenesis are exported from mentioned organs to the acceptor. Relevant adaptive responses under the influences of BFS of block I occurs towards the total metabolism activates, decline the accumulation/acceleration of the outflow of assimilates from donor-leaves to the acceptor.