

**A. DUBYTSKY, O. KACHMAR, A. DUBYTSKA,
O. VAVRYNOVYCH, M. SHCHERBA**

Institute of Agriculture of Carpathian Region of NAAS

**THE EFFECT OF ECOLOGIZED FERTILIZER SYSTEMS
ON THE DRY MATTER CONTENT INTO GRAIN DEPENDING
ON THE INTENSITY OF PHOTOSYNTHESIS AND OUTFLOW
OF ASSIMILATES FROM WINTER WHEAT LEAVES**

By results of researches it is established that the ecologized fertilizer systems (EFS, variants 5–15) caused increase of the grain productivity of winter wheat ear (M_{gs} , waxy ripeness) by 13,9–34,2 %, relative to the basic alternative fertilizer system (BAFS, variant 3).

The interdependencies between the increments ΔM_{gs} under conditions of EFS, relatively to the BAFS, and the concomitant changes in the intensities of net, gross photosynthesis, their ratios ($P^P_{n(UL)}$, $P^P_{g(UL)}$, $\Theta_{(B,T)}$) = $P^P_{n(B,T)}/P^P_{g(B,T)}$, respectively), as well as of the selected indices of export and use of assimilates in the upper leaves of winter wheat (subflag, flag leaves; earing – milk ripeness) were analyzed by methods of two-dimensional correlation analysis. It is shown, that specified ΔM_{gs} are accompanied by equally directed changes in export rates and efficiency of the use of photosynthates of the upper leaves onto the formation of these organs, and on grains of ears ($AD_{UL} \times 100$, LMA_{UL} , K_{rg} , respectively; coefficient of determination $R^2 = 0,545–0,902$), and in most variants these are closely related with increasing of the intensity of assimilate formation into the studied leaves during the accounting period – $P^P_{n(UL)}$, $P^P_{g(UL)}$ ($R^2 = 0,157–0,925$). Directly proportional interdependencies between ΔM_{gs} and an increase in the duration of the upper leaves by the area (photosynthetic potential) and mass were revealed (accordingly LAD_{UL} , BMD_{UL} ; earing – milk ripeness; $R^2 = 0,841–0,965$).

Simultaneously, it was found no clear synchronism, direct proportionality between $P^P_{n(UL)}$, $P^P_{g(UL)}$, $\Theta_{(B,T)}$, on the one hand and $AD_{UL} \times 100$, K_{rg} , LMA_{UL} , or LAD_{UL} , BMD_{UL} , on the other.

The results of researches highlighted the weighty importance of the photosynthetic and especially assimilate-supplying functions of the upper leaves (subflag, flag) of winter wheat during the period of grain filling (earing – milk ripeness) for formation of final productivity of these plants under conditions of EFS. At the same time, the obtained results testify to the absence of simple linear interdependencies between the rate of

photosynthates formation in the upper leaves ($P^P_{n(UL)}$, $P^P_{g(UL)}$), efficiency of use them for construction of these organs ($\Theta_{(UL)}$ or LMA_{UL}), and for creation of wheat ear (K_{rg} , $AD_{UL} \times 100$) under the conditions of the examined EFSs.