

**O. VYSHNEVSKA, I. TUHUIEVA, O. MARKINA**

The Institute of Agriculture of Polissya NAAS

**BIOLOGICAL EVALUATION  
OF GETEROGENEOUS CROPS PRODUCTIVITY  
WITH PARTICIPATION OF LUPINUS ANGUSTIFOLIUS L.  
AND CEREAL CROPS**

The results of research about biological estimation of binary mixtures *Lupinus angustifolius* L. with spring triticale and rye under their growing for green forage under conditions of Polissya region are stated. It has been determined that the index of land equivalent ration (LER) in agrophytocenosis during the vegetation period was characterized by different numerical indices. The highest LER indices have been established on mixtures with half legume sowing rate and full cereal component under feeding by liquid mineral fertilizers which contain NPK. The given coenosis formed green forage yield in flowering phase on level 13,4–16,6 t/ha of green or to 2,8–4,1 of dry mass, in phase of blue-grey pods – relatively 15,9–22,6 or 4,5–5,4 t/ha. The high mixtures efficiency proved the agrocecoses relative productivity index (RPI) which equaled to 1,23–1,77.

It has been established that the mixtures relative productivity index (RPI) is determined by *Lupinus angustifolius* L. fraction in them. The mixture connection power depending on the harvesting phase, from the flowering period to blue-grey pods decreased herewith in the spring triticale cececoses the alteration was larger: from heavy direct line ( $r=0,78$ ) to weak reverse ( $r=-0,22$ ). In rye mixtures from strong direct line ( $r=0,67$ ) to middle reverse ( $r=-0,53$ ).

It has been determined that the coefficient aggressivity *Lupinus angustifolius* L. plants in mixture depended on the linear growth cececoses components. Thus, in lupine and triticale mixtures the connection power increased from the flowering phase ( $r=0,50$ ) to the blue-grey pods phase ( $r=0,74$ ). In lupine and rye mixtures, on the contrary, it decreased from the strong ( $r=0,84$ ) to the middle ( $r=0,42$ ).

The coenosis with the components sowing rate that equals to 0,75 have been separated according to maximum competitiveness coefficient (CR - 0,98) which gave yield 13,4–16,0 t/ha of green or 2,9–4,9 dry mass on the background of basic fertilizer  $P_{60}K_{90}$  along with outroots feeding phosphorus-potassium liquid mineral fertilizers in period of two active plant development phases.