ASSESSMENT OF THE EFFECT OF GROUND WATER LEVEL ON CO₂ EXCHANGE RATE BETWEEN A GRASSLAND ECOSYSTEM AND THE ATMOSPHERE IN LYSIMETRIC EXPERIMENT

Key words: gross photosynthesis, ground water level, net ecosystem exchange, total ecosystem respiration

Summary

The aim of the studies was to determine in lysimetric experiment the effect of ground water level on the rate of CO₂ flux in a grassland ecosystem. The experiment was carried out in grassland-used peat-muck soil with four ground water levels kept at depths of 0, 25, 50 and 75 cm below ground surface. The mean total ecosystem respiration \( \text{TER} \) was 1.87 g CO₂·m⁻²·h⁻¹ while the mean gross photosynthesis \( P_G \) – 3.6 g CO₂·m⁻²·h⁻¹. It was found that the \( \text{TER} \) value of the grassland ecosystem increased together with ground water level lowering. The highest \( P_G \) values were found at ground water level 50 and 25 cm deep. Both soil profile saturation with water and water depth of 75 cm caused a decrease in \( P_G \) value.