Key words: energetic willow, evapotranspiration, groundwater level, precipitation, yield

Summary

Studies on the relationship between the yield of *Salix viminalis* L. and groundwater table depth were performed in the lysimetric station in Falenty on black degraded earth in the years 2009–2012. The groundwater table depth in lysimeters was kept at a constant level of 30, 100 and 170 cm during the growing season (April–October). The lysimeters were fertilised with an annual dose of 50 kg·ha⁻¹ N, 30 kg·ha⁻¹ P₂O₅ and 70 kg·ha⁻¹ K₂O, the same as in surrounding fields. Soil moisture, difference between poured and poured out water layer to maintain constant water table and atmospheric precipitation were measured in lysimeters. Evapotranspiration of plant crops was calculated for ten-day period with the water budget. The effect of groundwater table depth and year conditions on the evapotranspiration of *Salix viminalis* L. was demonstrated (levels of significance α = 0.05). Significantly lower evapotranspiration was noted at the groundwater table depth of 30 cm (variant A) compared with other variants (B – 100 cm and C – 170 cm). Statistically significant differences in evapotranspiration of willow were not found between the variants B and C. Lysimetric studies showed also that the water consumption in the evapotranspiration process by the willow decreased throughout the period of the study. Probably one of the factors having an impact on decrease in the annual evapotranspiration of willow beyond the meteorological factors is the age of the plant.