THE INFLUENCE OF GROUNDWATER LEVEL AND SANDY SOIL MOISTURE ON THE ANNUAL BIOMASS INCREMENTS OF WILLOW IN VIEW OF LYSIMETRIC ANALYSES

**Key words:** energetic willow, groundwater level, yield

**Summary**

Studies on the relationship between the yield of willow *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, biomass increments and final yield were measured in lysimeters.

The effect of groundwater table depth and weather conditions on the yield of willow *Salix viminalis* L. was demonstrated in the first two years of cultivation. Significantly lower yield 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 the annual biomass increments of willow were not found between the variants B and C.

Lysimetric studies showed also that the effect of water conditions and the annual yield decreased with plants’ age. In the years 2011–2012 no statistically significant differences were found in yields among all variants of groundwater table depth.

At stabilised groundwater table and permanent plant cover, variable precipitation did not exert significant effect on soil moisture.