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XXVI Sympozjum Nawadniania Roślin
NAWADNIANIE ROŚLIN
W ŚWIECIE ZRÓWNOWAŻONEGO ROZWOJU
OBSZARÓW WIEJSKICH
ASPEKTY PRZYRODNICZO-PRODUKCYJNE
I TECHNICZNO-INFRASTRUKTURALNE
MATERIAŁY KONFERENCYJNE



XXVI International Symposium on
PLANT IRRIGATION FOR SUSTAINABLE
RURAL DEVELOPMENT
BOOK OF PROCEEDINGS

10-13 czerwca 2025 r.
Bydgoszcz – Fojutowo

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(Stanisław Rolbiecki, Atilgan Atilgan red.)

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BURMISTRZA BRUS



EVALUATION OF WATER AND IRRIGATION REQUIREMENTS OF LITTLELEAF LINDEN (*Tilia cordata* MILL.) IN PHYTOMELIORATION PLANTINGS ON POST-ARABLE LAND

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Tree plantings in agricultural areas are part of the agrocenosis, they protect the soil against degradation processes, minimizing water and wind erosion of soil, regulate water balance and preventing the stepping of the agricultural landscape. The experiment with subsurface drip irrigation of littleleaf linden (*Tilia cordata* Mill.) was carried out in the years 2010–2014 based on field experience on post-arable land (very light soil) in Kruszyn Krajeński near Bydgoszcz. Selected tree species is recommended for plantings due to their fairly rapid growth and resistance to harsh soil conditions. The aim of the study was to determine the water needs - field water consumption (S) littleleaf linden in row planting on the very light soil under subsurface drip irrigation, as well as water deficits and irrigation needs. Field water consumption (S) of littleleaf linden in phytomelioration plantings on the very light soil in conditions of optimal soil moisture during the growing season was variable and depended on the course of rainfall-thermal conditions. Total water consumption of littleleaf linden in subsequent growing seasons was: 180 mm (2010), 244 mm (2011), 294 mm (2012), 392 mm (2013) and 443 mm in 2014. Daily water consumption increased with the growth of littleleaf linden. The amount of water deficits during the growing season was strictly dependent on the course of precipitation and thermal conditions. The greatest water deficits and irrigation needs occurred in relation to field water consumption (S) in the 4th and 5th year of the experiment, amounting to 106 and 164 mm, for the 2013 and 2014, respectively. The usage of modern technology of subsurface drip irrigation increases the possibility of using very light soil by securing optimal soil moisture conditions, allowing for undisturbed growth and development of littleleaf linden in row phytomelioration plantings.