# Impact of loess loam on the growth of seedlings of red oak on the sandy soils in the Green Zone of Kyev

D. F. Brovko, Master of Landscape Architecture
F. M. Brovko, doctor of agricultural sciences, professor

Loesslike loams, at their local bringing to sandy soils by 10-centimetre layers, serve as an accumulation of moisture and substantially influence on the biometrical indices of one-year seedlings of oak red and on distribution of biomass between their above-ground and underground organs, and final influence of this meliorative measure depends on the depth of inwraping of layer of loams in the layer of sands.

Due to the layer of loams the height of seedlings of oak gets better: after the diameter of trunks near a root-collar on 26–48 %; after the height of trunks on 25-42 %; after the area of sheet surface on 70–102 %. Most values of diameter of trunks (6,8±0,28 mm), areas of sheet surface (129±3,70 $sm^2$) and the least lengths of skeletal chums (37±1,51 sm), observed at seedlings that grew on sands with bedding of loams in the overhead 10-centimetre layer of sands, and most height of trunks (17,7±0,81 sm), observed at the seedlings grown on sand, where loam bed on 30-40-centimetre depth. Accumulation of biomass by seedlings, also it took place more intensive on sands with a layer.

The increament of biomass took place due to trunks (on 88–129 %) and leaves (on 23–123 %). Parts of root in general mass of seedlings remained most and presented-on sands – 80,4 % and on sands with the layer of loams was 67,3–71,3 %. Correlation of above-ground biomass to underground at the seedlings of oak, that grew on sands presented 1:4,1 and at seedlings that was cultivated on sands with the layer of loams of correlation were less and be within the limits of 1:2,0–2,5, that testify to adaptation seedling oak to height on sandy soils due to increase mass them.

The one-year seedlings of oak accumulated mass on sands better in all with the 10-centimetre layer of loams, that bedded on a depth a 0–10 cm (5,60±0,11 g).

On sands, with the layer of loams on a depth 0-50 cm, content of water in the letter of one-year seedlings of oak substantially did not differ from her content in the

letter of seedlings that grew on sands (53,5±0,82 %) and was within the limits of 54,1±0,62-54,2±0,83 % and a deficit of water in a letter was on 4,5–13,3 % less, than at seedlings that grew on sandy soils (9,0±0,19 %). With deepening of layer of loams in the layer of sands the deficit of water in a letter grew from (7,8±0,39 %) depth of in wraping a 0–10 cm) to 8,6±0,24 depth of in wraping a 40–50 cm, but intensity of transpiration diminished accordingly from 107 g•($m^2$•hour)$^{-1}$ to 94±1,53 g•($m^2$•hour$^{-1}$) the greatest content of water in the letter of seedlings of oak (54,7±0,83 most intensity of transpiration (107 g•($m^2$•hour)$^{-1}$) and the most subzero deficit of water (7,8±0,39 %) observed on sands where loam bedded on adepth 0–10 sm.

Nine-year seedlings of oak red, inspected in block 68, unit 6, Rovzy forest district, had such middle biometrical indices: a height of trunks – 14,0±0,43 sm; diameter of barrels near a root-collar – 8,2±0,86 sm; theamount of sheets at seedlings – 12±1 pieces; increase of central escape in a height for the last year – 2,5±0,21 sm; correlation of above-ground organs to underground 1:2,8±0,12. Absolutely dry biomass of 9-years-old seedlings of red oak arrived at 14,9±0,49 g, and a root (11,02±0,47 g), part of that in general mass of experimental plant spresented at 73,3 %. Part of biomass, that belonged to trunks (10,2 %) and to the leaves (16,5 %) testify that at growing on sandy soils seedlings of oak red necessary application of meliorative measures that assists an improvement of forest site property, prevailed in her factious composition.

Keywords: sandy soils, loam, seedling, biomass, red oak.