

# Increase in Efficiency of Afforestation in the Southern Steppes of the Country

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*Studies of the water regime, growth and condition of artificial plantations of Pinus sylvestris L., P. Pallasiana L., Quercus robur L. and other species in the south of the East European Plain demonstrate that absence of forests of steppe spaces, low durability of artificial afforestations are obliged by excessive variability seasonal and the annual sum of an atmospheric precipitation, a critical reduction in the reserves of root-accessible moisture and humidity of the forest in dry years. The moisture content of forest cultures on automorphic soils changes with high (in ontogenesis) to insufficient – in the middle or the end of the vegetative period of close plantings in process of growth. The greatest deficit is found in fast-growing young plants and often leads to its death. The reliable damper for reducing water availability and drought tolerance of forest stands is the long-term starting stocks of soil moisture and available groundwater. The danger of his death decreases with age, also thanks to the deepening of the root system, slowing down the response to a temporary increase in water availability. The accompanying breeds, bushes and, especially, sodding of the soil, on the contrary, increase deficiency of water food of the main breed, the need to chop hack and agrotechnical care. The advantage of sustainability on rich soils have pure plantings demanding to the fertility of shade-tolerant trees and shrubs.*

*Technology of cultivation of durable afforestations on rich moisture capacious sands and heavy soils of a droughty zone has to include: selection of the most forest-tolerant areas and (or), long-term basic tillage; creation of pure cultures with respect to shade-tolerant salt-bearing and drought resistant trees and shrubs of medium density; agricultural care until the crowns are closed; frequent low-intensity thinning of young plants, the promotion of the appearance of a shading tier under the canopy of the forest is in older age. This technology is implemented in recommendations for afforestation in semi-desert and desert regions of Kalmykia.*