

# The Retrospective Analysis Of Forest Cultures Creation Technologies on Hilly Sands of the Average Don and Their Silvicultural Assessment

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On sandy terraces in the basin of Central Don hilly sands are the most difficult for forest improvement. During their development 4 technologies of creation of forest cultures are developed and approved:

- 1 – soil preparation by furrows, hand planting;
- 2 – soil preparation by furrows, the mechanized planting;
- 3 – the mechanized planting with simultaneous cultural operations;
- 4 – preliminary ridging, prelanding cultivation, the mechanized planting (modern technology).

Efficiency of technologies is estimated on the following indicators: 1) survival; 2) safety of plants in forest cultures; 3) biometric indicators of plants; 4) structure of forest stands on diameter; 5) level of influence of tree species in mixed plantations.

Survival of forest cultures at technical acceptance made 97–99% when using technologies № 1–3 and less than 50% – when using technology № 4. Advantage of hand planting over mechanized is shown since 4–6 growth. Lack of modern technology is large number of technological operations.

By the time of transfer of forest cultures to the lands covered with forest vegetation, quantity of the remained plants at manual way of creation decreases by 4,4–7,4% of initial density, and at mechanized – for 6,7–20,1%. Technologies № 1–3 provide normative requirements for density of forest cultures even on condition of seed spacing reduction. The modern technology does not promote preservation of required quantity of plants.

On biometric indicators of plants of technology direct impact is not made. Distinctions in growth are caused by biological features of wood breed, soil conditions, initial density.

Statistics of structure of pure plantings of Scotch pine ( $As = 0,012$ ,  $Ex = -0,595$ ) and Crimean pine ( $As = -0,432$ ;  $Ex = -1,302$ ) indicate low suitability of use of the second as the main wood breed at cultivation of forest cultures on hilly sands.

*In mixed plantations of coniferous breeds already in the second class of age the negative impact of Scotch pine is observed: diameter of Crimean pine is 1,5 times less.*

*On complex of indicators of the most effective is the technology based on manual way of creation of forest cultures. As in modern conditions the refusal of means of mechanization is impossible, measures for increase in efficiency of reforestation are increase in seed spacing up to 8–10 thousand pieces/hectare and reduction of number of technological operations.*