

The New Generation Forest Selection Program

M.V. Rogozin – Perm State National Research University, Professor,
Doctor of Biological Sciences, Perm, Russian Federation, rog-mikhail@yandex.ru

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The aim of the work – to tell about the new methods of forest selection. New knowledge on the development and selection of forest ecosystems, including the author's results, is presented; their integration is a method of investigation. The laws in the development of stands are considered; Their registration in breeding solves the problem of growth types by controlling the development of test cultures by the regulation of their density [1]. The selection of Finnish spruce [2] and Scots pine [3] with the study of offspring from 1.435 trees showed that there is an epigenetic influence of the parent populations, and the differences in height between their offspring reach 15–21%. Differences in growth were influenced both by the density of the parental populations and by the density in the test cultures themselves. This kind of influence presupposes that the offspring have a genetic «memory» about the conditions in which their mothers developed, and in them it grows better. Therefore, the selection of the source material should be carried out in stands similar to plantations in which it is planned to grow offspring. In both cases, the conditions must be very exactly the same, especially the density at an early age. Signs related to the physiology of the tree can also be used. For example, taper tree trunk, which «records» the history of competitive pressure on it. With its values at spruce 1.2-1.3 cm / m, plus-trees produced offspring, where the best families with heights from 115% turned out to be 1.5-2.4 times more. You can use the chemical composition of the needles; It turned out to be practically independent of the composition of the soil, which showed an inaccurate correlation between the content of the elements in the needles and in the soil near the trees. In this case, the complex of elements of the tree needles manifests itself as a chemo-sign, and it influenced the growth of families. It was found out that if the families are selected by the ash content of the needles of 5.3% or less and combine it with the selection of trees for the escape of the trunk, the frequency of the best families increases 3 times or more. A patent was obtained for these results, which is characterized by the use of such families, whose needles at the age of 3 years and older are among the 30% of samples with a minimum ash content. Moreover, chemo markers were identified, recognizing up to 83% of the best families [4]. A 10-year selection program with a 4-fold cost reduction. Its cost is approximately 45 million rubles.

References

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