Poplar Clones Trial for three year short rotation system

A. R. Modirrahmati[1] and R. Baghery[2]

Abstract

Poplars are one of the tree species with high potential for producing large amount of wood at short period due to their fast growth ability. Because of their wood special and unique characteristics, they can be used in different industries such as particleboard, pulp, paper, match board.

The aim of this study was to increase wood production in each area unit, produce wood continuosly at short rotation system and increase income of poplar growers. Overall, 18 native and exotic clones of poplar were investigated at three year rotation system and repeated for the same rotation period.

The research was conducted under statistical design of Randomized complete Blocks with three replicates at Alborz - Karaj Research Centre. After each rotation period few tree parameters including survival%, shoot numbers, number of shoots having more than 2 m. height, diameter of vigorous shoots at stem collar and intemediate levels, height and shoot dry weight were measured.

Statistical analysis of the two rotation periods showed that there were significant difference between the poplar clones for their yield per hectare. The clones *P.e.* 561.41, *P.e. triplo* and *P.e. costanzo* had the greatest dry biomass production (25.43, 25.22 and 22.65 ton/ha/yr, respectively).

It can be concluded that increasing the trees space and rotation period, selecting the vigorous trees and prunning the extra shoots, result in high diameter growth and high pulp and paper production of the most out standing clones.

Key Words: Poplar, Clone, Shoots, Short-rotation

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Acacia Species trial in Khuzestan province of Iran for biological sand dune stabilization

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Abstract

There are about 350000 hectares of sand dunes and sandy lands in Khuzestan. During the past 40 years, different physical, chemical and biological operations were applied to stabilize these lands and the results were statisfactory. These operations were important in view point of soil conservation, environment rehabilitation and sustainable development, but not in view points of economical and social affairs. The trail was conducted to in troduce some multipurpose forest species in rainfed condition of semi-arid parts of Khuzestan and on sand dune lands.

Three species of *Acacia*, including *A. acuminata, A. farnesiana* and *A. victoriae* were planted in 1993 under statistical design of Complete Blocks, with three replicates, at 3×3 m. spacing and against dominant wind direction. After seven years, the data were analyzed. The results showed that there were significant differences between the species. *A. farnesiana* had the highest percentage of survival (62%), wherease *A. victoriae* achieved the maximum rate of height and diameter growth (3.87 m. and 5.3 cm, respectively).

Key words: Sand dune stabilization, *A. victoriae, A. farnesiana, A. acuminata*, Survival, Growth, forage

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Evaluation of walnut's seed properties in Kurdestan province

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Abstract

Seeds of 28 elite walnut genotypes were collected from five sites to study their genetic variation. Ten seeds were selected randomly from each genotype to measure their quantitative characteristics, including grand and small diameter, weight, kernel weight and percentage and shell weight and thickness. The data were analysed, using the Nested Design Model.

The results showed that there were significant differences between the genotypes for their quantitative characteristics. The genotypes from Marivan and Paveh were the superior for their highest kernel weight and percentage and their lowest shell weight and thickness.

There were significant and positive correlations between average grand diameter with average small diameter, seed weight, kernel weight, shell weight and negative and significant correlation with average kernel percentage.

The correlation between average small diameter and average seed weight, kernel weight and percentage, shell weight was positively significant. The correlation between average seed weight, and average kernel weight and percentage, shell weight and thickness was positively significant. There were significant and positive correlations between average kernel weight and average shell weight and kernel percentage. The correlation between average shell weight and average shell thickness was significant and positive, whereas its correlation with average kernel percentage was significant and negative. There is also significant and negative correlation between average shell thickness and average kernel percentage.

The cluster analysis was applied to investigate the walnut populations' similarity, based on the genotype seed characteristics. The most similar populations were from Saghez and Sanandaj sites.

Key words: walnut, *Juglans regia*, seed, characteristics, genetic variation

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Effects of different sowing dates on quantitative and qualitative production of (*Cedrus deodara* G. Don) seedlings in nursery.

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Abstract

The objective of this study was to find out the most suitable date of seed sowing in view point of seed germination and quantitative and qualitative growth of (*Cedrus deodara*) seedlings in forest nursery. The experiment was conducted, using randomized complete blocks design with six replicates and six treatments and repeated for four years. The results were as follows:

1- Sowing date, year of experiment and their interaction had significant effects (P<0/01) on number of germinated seeds, 50 days and seven months after sowing date.

2- Sowing date, year of experiment and their interaction had significant effects (P<0/01) on average height of seedlings, seven months after sowing date.

3- The best moderate and worst dates of seed sowing, in view points of seed germinated numbers and seedling quality were as follows:

Best: 5 th March - 24 th february.

Moderate: 15 th - 25 th March.

Worst: 04 th - 14 th April.

Key words: *Cedrus deodara*, seed sowing, germination, seedling, quality

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Effects of seed trees age and one year seed storage on seed germination of *Sorbus torminalis*

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Abstract

In 2000, fourty seed trees which were located at Sanghdeh Forest of Caspian Region with altitude ranged between 1700 to 2300 m-above sea level, were selected. 200 seeds were collected from each tree, subsequently. The seeds were sown in 2000 and in 2001 repeatedly, in plastic bage containg forest soil and kept in a forest nursery located at the same forest at 1550 m. above sea level altitude.

Seed germination and seedling survival was measured in 2000 and 2001. According to T-Test data analysis, there were significant differences between seed germinatin and seedling survival of the treatments in both years. Total seed germination (TSG) in 2000 was 9.22% more than TSG in 2001. Seed germination was correlated significantly and negatively with the seed trees age and diameter. Seed trees with moderate age and at diameter class of 30 cm, performed the highest percentage of seed germination in 2000 (without seed storage).

There was minimum reduction in seed germination for seeds collected from trees at moderate diameter class and stored for one year.

Key words: *Sorbus torminalis*, seed tree, age, germination, storage

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Effects of bottom cutting on poplar seedlings growth and uniformity at different ages and clones

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Abstract

The purpose of this study was to investigate the effects of bottom cutting on seedlings growth and to measure seedlings growth at different ages (1/1, 1/2 and 2/3 years) and their growth uniformity. For this reason 52 clones of native and axotic P*opulus* species were planted in an experimental nursery. The seedlings were propagated by cutting method and planted at 120 × 30 cm space.

The seedlings were cut at the second year of nursery plantation and their growth parameterrs were measurrd at end of the second and the third years growth period.

The species were *P. nigra, P. alba, P. euramericana* and *P. deltoides* and their clones number were 27, 14, 7 and 4, respectively. The SPSS computer program and the T-Test method (Duncans Multiple Range Test) were applied for data statistical analysis.

The effects of bottom cutting on seedlings growth increment and uniformity were significant. there was significant different between the seedlings growth in different clones.

Key words: *Populus*, experimental nursery, clone, uniformity, cutting

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