ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-5206, Impact Factor: 12,23
American Academic publishers, volume 05, issue 09,2025

Journal: https://www.academicpublishers.org/journals/index.php/ijai

AGROTECHNOLOGY OF GROWING CALIFORNIA POPLAR (Populus fremontii) SEEDLINGS

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ANNOTATION: This article is devoted to the development of agrotechnology for growing standard California poplar seedlings in Uzbekistan. The experiments showed that the viability of cuttings cut from new branches in November is high. Cuttings were planted with a length of 10–35 cm and a diameter of 5–18 mm, and as a result, cuttings with a length of 25–30 cm and a diameter of 12–15 mm showed the highest indicators (41 cuttings). This option was found to be superior in terms of root formation rate and viability. Scientific recommendations were developed on the agrotechnology of growing seedlings - cutting preparation, planting date, irrigation, fertilization, and methods of seedling extraction. The study is of practical importance in establishing high-quality timber poplar plantations in Uzbekistan.

Key words: California poplar (*Populus fremontii*), branch, cuttings, bud, callus, agrotechnology.

Introduction. The California poplar (Populus fremontii) is a tall tree belonging to the willow family (salicaceae), a genus of poplars (Populus). This tree is named after the 19th-century American explorer and traveler John S. It is named after Fremont.

The California poplar (Populus fremontii) has a height of 15-35 m, a diameter of 1.5 m, wide, pyramidal and egg-shaped branches, and is a large tree with a single or branched trunk. The bark cracks along the neck, the young branches turn blue, and the trunk of the tree is dark gray. The branches are ashen or brownish in color.The Aliphornian poplar (Populus fremontii) has a height of 15-35 m, a diameter of 1.5 m, wide, pyramidal and ovoid branches, and is a large tree with a single or branched trunk. The bark of the neck cracks, the young branches turn blue, and the trunk of the tree is dark gray. The branches are ashen or brownish in color. The leaves are ovate or deltoid, 3-7 cm high, 3.5 cm wide, pointed, toothed at the edge, the leaf is striped, slightly pubescent. The leaf blade is 2.7-3.5 cm, slightly pubescent or hairless. Male flower buds 10-12 mm high, ovate, brown, glabrous. The shrub is 6.9 cm high, 1 cm wide, multi-flowered, with 24 flowers arranged in a short hairless band. Rosehip leaves are veiled, brown, 3-5 mm long, wide or rounded, with a serrated base, without pubescence, with a deep groove along the edge.The mouth is 6.9 cm high, 1 cm wide, multi-flowered, with 24 flowers arranged in a short hairless band. Rosehip leaves are veiled, brown, 3-5 mm long, wide or rounded, with a serrated base, without pubescence, with a deep groove along the edge. The flower-bearing achene buds are 14-16 mm tall, smooth, greenish-brown, sticky, hairless. A shrub 5-7 cm high, 0.8 cm wide, short-pubescent, multi-flowered, 33-40 pieces of flower, located in an inflorescence with a diameter of 15 mm. Rosehip leaves are veiled, triangular in shape, with a long ciliated tip. The cone is ovate or rounded, 5-7 mm long, 3.5-5 mm wide, three-partitioned, glabrous, small. The seeds are large, 2 mm high, 1 mm wide, white, oblong, with short felt hairs [1].

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The California Poplar (Populus fremontii) is distributed in the southwestern United States and Mexico. In the United States, it can be found naturally in California, Idaho, Nevada, Utah, Arizona, New Mexico, Texas, and Colorado.The Ifornian Poplar (Populus fremontii) is distributed in the southwestern United States and Mexico. In the United States, it can be found naturally in California, Idaho, Nevada, Utah, Arizona, New Mexico, Texas, and Colorado. In Mexico, it can be found in Baja California, Baja California Sur, Sonora, Chihuahua, Coahuila, Nuevo Leon, Mexico (state) and Puebla. This tree grows and develops mainly along the shores of reservoirs, rivers, lakes, wetlands in areas up to 2000 meters above sea level. Currently the largest P. In the USA. The fremontii tree grows in the Skull Valley in Arizona. In 2012, his measured body circumference was 14,100 mm, height 31 m and width of horns 45.6 M [7]. The California Poplar (Populus fremontii) is a tree introduced to our country, which is mainly planted a lot in order to obtain wood.fremontii grows in the Skull Valley in Arizona. In 2012, his measured body circumference was 14,100 mm, height 31 m and width of horns 45.6 M [7]. The California Poplar (Populus fremontii) is a tree introduced to our country, which is mainly planted a lot in order to obtain wood. When individual parts (trunk, bark, and other parts) are examined to determine if different parts of the tree are suitable for processing. The most valuable component of the trunk wood, cellulose, is most present in the trunk of the tree, accounting for 42.7%, and the least — 23.8% in the bark [2,3,4,5,6].

The experimental part. The time of preparation of the stem for cuttings in Uzbekistan is the end of November-beginning of December. Cuttings cut from the branches prepared during this period will have high viability and grow well. Ham branches can be harvested in January and February. But during this period, the viability of the cuttings decreases sharply due to the fact that aphids begin to move on the trunk of the poplar. Prepared branches are kept intact without pruning. They are tightly bound from 100 cuttings, preventing drying out or pre-germination, and the cut lower part of the branches is buried in moist soil in a place protected from the sun.

Before carrying out the prepared cuttings, the cuttings are cut to the desired length, that is, 3-4 buds are taken from the place where the branches were laid. Cuttings from the branches are recommended to be cut 1-2 days before transplanting. If the cuttings were cut earlier, they should be stored in trenches 45-50 cm deep. after carrying out the prepared cuttings, the cuttings are cut to the desired length, that is, 3-4 buds, taken from the place where the branches were laid. Cuttings from the branches are recommended to be cut 1-2 days before transplanting. If the cuttings were cut earlier, they should be stored in trenches 45-50 cm deep. Clean river sand with a thickness of 5 cm is placed on their bottom, and connected cuttings of 100 pieces are placed vertically (base down) on top. cuttings are buried in the soil. The cuttings from the branches are cut with hand scissors or other cutting tools, and the cuttings are brought to readiness. For most types and varieties of poplar, the stalk is cut to a length of 20-25 cm, while the base thickness should be 0.5-1.5 cm. When pruning cuttings from branches, the upper section is cut off, leaving 1-2 cm from the last leaf bud. It is smooth and cut obliquely so that the spring rainwater can carry it away.The branches are cut off with hand scissors or other cutting tools, and the cuttings are brought to readiness. For most types and varieties of poplar, the stalk is cut to a length of 20-25 cm, while the base thickness should be 0.5-1.5 cm. When pruning cuttings from branches, the upper section is cut off, leaving 1-2 cm from the last leaf bud. It is smooth and cut obliquely so that the spring rainwater can carry it away. This will prevent the cuttings from rotting and allow the vertical branch to germinate. The lower cut of the stalk is cut off precisely at the base of the leaf bud, since it is here that the corn quickly appears, many roots stand out and develop rapidly. Poplar cuttings can be transplanted in autumn and spring. Cuttings planted in autumn take root well, have a higher viability than

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cuttings planted in spring, and grow better. In order to increase the viability of cuttings planted in spring, they are watered to provide moisture after planting.

The irrigated soil is compacted, its humidity increases, all this affects the good rooting of cuttings. When transplanting cuttings into the soil in autumn and early spring, in the presence of deeply plowed loamy soils, they can be driven into the ground. If calluses have accumulated on the cuttings, they are buried in the soil with a hoe.olive soil is compacted, its humidity increases, all this affects the good rooting of cuttings. When transplanting cuttings into the soil in autumn and early spring, in the presence of deeply plowed loamy soils, they can be driven into the ground. If calluses have accumulated on the cuttings, they are buried in the soil with a hoe. The amount of transplanting of cuttings into the soil per 1 ha depends on the duration of their care in the nursery. If a seedling is cared for in a nursery for a year, then 72 thousand cuttings are carried out on 1 hectare, If 58 thousand pieces are placed over two years. The distance between the rows is 70 cm, the distance between the cuttings should preferably be placed from 20 cm in the first case, up to 25 cm in the second. When planting the cuttings in the soil, it is left above the soil by a third.if a seedling is cared for in a nursery throughout the year, then 72 thousand cuttings are carried out on 1 hectare, If 58 thousand pieces are placed over two years. The distance between the rows is 70 cm, the distance between the cuttings should preferably be placed from 20 cm in the first case, up to 25 cm in the second. When planting the cuttings in the soil, it is left above the soil by a third. The rest of the time, irrigation ditches should provide sufficient moisture when opened and for planted cuttings. Cuttings planted in autumn are planted deeper than in spring.

Care should be taken to plant poplar cuttings in rows in a straight line. The row should be no more than 100 m long. Longer rows make it difficult to water, chamois at the beginning of rows and lack of moisture at the end of rows. Therefore, if the rows are more than 100 m long, they are separated by an axial ditch.

Table 1 follows to take care to plant poplar cuttings in rows in a straight line. The row length should be no more than 10

Qalamchalar uzunligi. Sm	Qalamchalar diometri, mm	Qalamchalar soni. dona	Ekilgan sana	Kurtak hosil bo‘lishiga ketgan kun	Kallus hosil bo‘lishiga ketgan kun	Ildiz hosil bo‘lishiga ketgan kun	Ildiz olgan va saqlanib qilgan qalamchalar soni, dona
10-15	5-7	50		11	18	31	24
15-20	8-10	50		12	19	30	31
20-25	10-12	50	05.III	12	19	32	33
25-30	12-15	50		10	18	28	41
30-35	15-18	50		13	20	31	37

When using California poplar cuttings, cuttings ranging in size from 10 to 35 cm and in diameter from 5 to 18 mm were used to grow seedlings. In each variant, 50 cuttings were planted, and they were planted in the ground on March 5.When using California poplar cuttings, cuttings ranging in size from 10 to 35 cm and in diameter from 5 to 18 mm were used to grow seedlings. In each variant, 50 cuttings were planted, and they were planted in the ground on

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March 5. According to Table 1, all the results showed the high efficiency of cuttings in the experiment in terms of bud formation and callous formation, as well as the degree of root formation and preservation of cuttings in the variant with a cuttings length of 25-30 cm and a diameter of 10-12 mm.

Timely good care of the cuttings After planting the poplar will ensure the successful cultivation of its seedlings. Only with good care can a high level of viability and rapid growth of cuttings be achieved. One of the important measures in the care of poplar cuttings is watering. Cuttings are watered at intervals of 10-15 days for two months after planting in the soil, later this interval can be extended.good belt care of the cuttings After planting the poplar will ensure the successful cultivation of its seedlings. Only with good care can a high level of viability and rapid growth of cuttings be achieved. One of the important measures in the care of poplar cuttings is watering. Cuttings are watered at intervals of 10-15 days for two months after planting in the soil, later this interval can be extended. When watering, the infiltration method can also be used (irrigation with a small drain). With properly organized irrigation, an average of 800 m3 is consumed per 1 hectare of the area on which the cuttings were carried out, depending on the composition of the soil. The amount of irrigation depends on the weather and the hydrological state of the soil. In years when there is a lot of precipitation, the amount of irrigation is low, and in dry years-a lot.properly organized watering on 1 ha of the area on which the cuttings were carried out consumes an average of 800 m3 per watering, depending on the composition of the soil. The amount of irrigation depends on the weather and the hydrological state of the soil. In years when there is a lot of precipitation, the amount of irrigation is low, and in dry years-a lot. On moderately gray, gray soils with deep groundwater, they are watered 10-12 times per summer. In areas with close groundwater occurrence, the number of irrigations during the growing season is reduced to 7-8 times. On rocky soils, 14th and more watering is possible. In the first year, the soil in the rows is loosened by manual labor at least 2-3 times to a depth of 8-9 cm, and the row spacing is loosened 4-5 times to a depth of 10-12 cm by horse-drawn or minitractor cultivators.on rocky soils, 14th and more watering is possible. In a year, the soil in the rows is loosened by manual labor at least 2-3 times to a depth of 8-9 cm, and the row spacing is loosened 4-5 times to a depth of 10-12 cm by horse-drawn or minitractor cultivators. In the early stages, the row spacing is processed by manual labor, since this is the period of root formation, young small poplar roots are easily damaged, and the cuttings dry out. Loosening of row spacing and manual mowing of weeds in rows is necessary only if the weeds develop quickly or the soil is compacted. Subsequent rows are loosened only in the middle of summer, and the last time is loosened after the completion of watering (watering ends at the end of September).waiting for rows and manual mowing of weeds in rows is necessary only if the weeds develop quickly or the soil is compacted. Subsequent rows are loosened only in the middle of summer, and the last time is loosened after the completion of watering (watering ends at the end of September). Organic (humus, compost) and mineral (nitrogen, phosphorous) fertilizers are applied to poplar seedlings. They are divided into basic and auxiliary top dressing. During the main top dressing, humus, compost and mineral fertilizers are applied before plowing the site. With auxiliary top dressing, mineral fertilizers are applied during the growing season. During the growing season, the first top dressing is carried out with nitrogen and phosphorus fertilizers in May, the second with nitrogen fertilizers only in July and August. The fertilizer is thrown into the aisles, turned over to a depth of 10-15 cm, and then watered.In addition, mineral fertilizers are applied during the growing season. During the growing season, the first top dressing is carried out with nitrogen and phosphorus fertilizers in May, the second with nitrogen fertilizers only in July and August. The fertilizer is thrown into

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the aisles, turned over to a depth of 10-15 cm, and then watered. Humus from organic fertilizers, depending on the composition of the soil, compost 20-30 t/ha. Mineral fertilizers provide nitrogen in the main and auxiliary fertilizers at a rate of 120-180 kg / ha, phosphorus-60-80 kg/ha. Row spacing, on the other hand, is cultivated if necessary. But the growing intervals should not exceed 3 waterings. In the second year, the number of waterings and treatments will be less than in the first year, with 6-8 waterings and four times loosening of row spacing, a good result can be achieved. When growing poplar seedlings, excess branches are conditionally cut off from them.The growing intervals should not exceed 3 waterings. In the second year, the number of waterings and treatments will be less than in the first year, with 6-8 waterings and four times loosening of row spacing, a good result can be achieved. When growing poplar seedlings, excess branches are conditionally cut off from them. In most cases, several branches grow from cuttings, so in late May and early June, the underdeveloped branches are cut off, leaving only one that develops well. This method accelerates the growth of the seedling to the height and diameter of the body. In July and August, the lateral branches of the seedling are cut off to the tip, and in September they are cut off completely.

A.

B.

D.

Figure 1. A-the process of making cuttings, B-the process of applying mineral fertilizers to young seedlings, D-the general condition of seedlings (up to 1.8-2.5 m in the 6th month).

The care of the Poplar seedling for the second year includes watering work, the provision of nutrients, loosening of the soil, the formation of the body of the Hamda. In this case, watering 8 times during the summer, in spring or early summer with nitrogen is fed according to the given norm in the first year of cultivation, the rows are loosened twice and the row intervals are given cultivation four times.he care of the Poplar seedling for the second year includes watering work, the provision of nutrients, loosening of the soil, the formation of the body of the Hamda. In this case, watering 8 times during the summer, in spring or early summer with nitrogen is fed according to the given norm in the first year of cultivation, the rows are loosened twice and the row intervals are given cultivation four times. In mid-summer and autumn, after the end of the growing season, the plant is cleaned of side branches up to half its height. A poplar seedling is dug up in the fall after the end of the growing season or in the spring without moving water on its body. The quality of seedling extraction is determined by its survival after transfer to a permanent place. Therefore, the seedling must be carefully dug up without damaging the root system. The digging depth for an annual seedling is 30x30 CM, and for two years-50x50 CM. poplar seedling is dug up in the fall after the end of the growing season or in the spring without moving water on its body. The quality of seedling extraction is determined by its survival after transfer to a permanent place. Therefore, the seedling must be carefully dug up without damaging the root system. The digging depth for an annual seedling is 30x30 CM, and for two years-50x50 CM. Seedlings can be dug up using VPN — 2 branded plug mechanisms powered by a hoe or DT-54 tractor. The excavated seedlings are sorted and temporarily buried. To do this, a sickle is dug to a depth of 35-40 CM, and the seedlings are planted in the ditch, tilting them in a hole with the roots pointing down, and the upper part, the roots, are buried with soil. With such ready-made seedlings, we can build quality, wooden Poplar plantations.

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Journal: https://www.academicpublishers.org/journals/index.php/ijai

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