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Michigan State University
Extension-Oakland County

Growing Evergreen Trees From Seed

Selection of Soil & Site

A well-drained sand or sandy loam soil that has been cultivated for a year or more should be used for the seedbed. Avoid the use of clay or clay loam soils. The average garden soil should have enough fertility to grow evergreen trees without adding any commercial fertilizer.

The seed bed should be located on well drained, level ground free of shade and near a supply of water.

Size of the Seed Bed

A 12 square foot seed bed will grow about 500 to 600 trees.

A rectangular frame 3'x4' or 2 ½' x 5' can be made from scrap lumber using boards 4 inches wide.

The frame should be nailed together so the boards will rest on edge. The top of the frame should be covered with ¼" or ½" mesh hardware cloth to prevent birds from damaging the seedbed after the seed is sown.

For ventilation and to prevent loss of seedlings from damping-off disease, it is well to build a second frame the same size to be placed in the ground so the edge of the board will be flush with the surface of the soil. The frame above the ground can then be raised by placing blocks of wood or bricks between the two frames to ventilate the surface of the seedbed.

Soil Preparation

Spade the soil to a depth of 8 inches, rake and level the surface. Remove all stones, lumps, roots and other trash from the surface soil. If two seed frames are to be used, place on frame in the ground so the edge of the boards will be flush with the surface of the cultivated soil. The loose soil should be firmed a little by placing a wide board flat on the surface, then step on it. This can be repeated until the entire surface of the seedbed is level and firm.

Table 1– Amount of Seed To Sow by Species

Recommended Use:

1 Ornamental
2 Timber Production
3 Christmas Trees
4 Pulpwood
5 Windbreaks

		Avg. # clean Seeds per lb.	Avg. Germination Percentage	Amount of Seed to Saw In 12 Square feet	
				Ounce	Tsp.
White Spruce *Picea glauca*	1,3,4,5	240,00	25-45	.13	2
Blue Spruce *Picea pungens*	1,3	106,00	73	.20	2
Norway Spruce *Picea abies*	1,3,4,5	64,0000	75	.34	3
Red Pine *Pinus resinosa*	1,2,3,4,5	52,0000	75	.39	31/2

Time to Sow Seed

Most evergreen tree seed will germinate readily if sown in the spring during May. White pine and white spruce require two or three months of stratification to obtain best germination, therefore, seeds of these species should be sown in the fall during late October or early November.

Amount of Seed to Sow

For most accurate sowing, a germination test of the seed should be made by sowing 100 seeds in a flat of sand. Count the seedlings that grow to determine the germination percent. Seventy to eighty good seeds should be down on each square foot of the seedbed in order to obtain a stand of 50 or 60 trees to the square foot. Seedbed germination is usually a little less than the germination test indicates.

When sowing seed without a germination test, use the average percentages or the quantity of seed recommended for each species in the following table.

After the soil has been properly prepared and seedbed frame placed, the seed should be sown evenly over the surface of the soil. A hand seeder can be easily made by punching holes (from the inside out) with a nail in the metal top of the glass jar. The holes should permit the seed to sift through freely when shaking the jar. Hold the jar of seed 6 to 10 inches above the soil and broadcast evenly by sifting both lengthwise and crosswise over the bed. The seed should then be covered 1/8 to ¼ inch of sterile sand taken from a depth of 18 inches or more below the surface so it will be free of weed seeds and plant diseases commonly found in surface soil. The smallest seeds, white spruce, blue spruce and jack pines, should be covered 1/8 inch deep; while larger seeds of the other species will germinate readily through ¼ inch of sand.

A sand sifter made of 4 inch boards nailed together to form a frame 18 inches square with ¼ inch mesh hardware cloth (for most sand) stapled to the bottom of the frame can be used to clean the sand and cover the seed to an even depth. After the seed has been covered, a piece of clean burlap pre-soaked

several hours in water should be placed on the surface of the seedbed. It will serve as a good winter mulch for fall sown seed, and it will prevent the sand from washing off the seed by hard rains. As soon as the seed begins to germinate (about two weeks) the burlap should be removed and a hardware cloth cover put over the frame to prevent birds from pulling the seedlings.

When most of the seedlings have germinated and the seed coats have fallen off the tips of the seedlings, the hardware cloth can be replaced with lath shade. A short piece of snow fence or lath nailed to two narrow boards with a space between each lath equal to the width of a lath will make satisfactory shade.

Watering

The surface soil should be kept moist until the seedlings begin to germinate. After germination starts less water is needed. If rains are frequent, little or no watering is needed. During dry weather a good watering once a week is better than several light sprinkles. Three gallons of water applied with a sprinkling can should moisten the soil to a depth of two or three inches. Excess moisture will create favorable conditions for damping-off disease. Watering in the middle of the day is preferred so the soil will dry by evening.

Damping-Off Control

Damping-off is a fungus disease that withers the stem of the seedling at the ground line. Seedlings are most susceptible to this disease during the first six weeks after germination. Humid weather promotes damping-off. During such weather remove the shade and raise the seed bed frame to let air circulate freely over the surface of the soil.

Weed Control

Chemical weeding is the modern way of controlling weeds in forest tree nurseries. However, the use of herbicides is a very exacting science, and errors can result in failure to control weeds or even damage to the seedlings. Also, the availability of herbicides can change quickly, and some products may only be available to certified pesticide applicators. Since many factors can influence the selection and use of chemical herbicides, you should discuss your concerns and objectives with your local horticulture or agriculture educator.

Fall and Winter Care

The shade frame should be removed by the first of September.

Very little, if any, watering is needed during the fall months. Only when the ground is dry and the weather is warm should the seedbed be watered.

In late November the seedbed should be mulched with ½ to ¾ inch of sawdust or an inch or two covering of long clean straw spread over the trees. Sawdust is the best mulching material to use because it will help retain soil moisture and will reduce weeding to some extent the second year.

Future Management

If straw is used as mulch, remove it the middle of April or before new growth starts. Pull weeds all during the summer. When the weather is dry soak the soil once a week with five or six gallons of water.

Two-year-old pine seedlings are usually large enough for field planting. Spruce seedlings should be left in the seedbed another year or lined-out in rows two or three inches apart. The row spacing should be a convenient width for cultivation. If all work is to be done by hand, six to eight inch spacing of rows is satisfactory. Shallow cultivation should be practiced so as not to damage the tree roots. The trees can be left in the lining-out rows for one or two years, depending on the size desired for field planting.

Would you like additional information?

Additional information is available on-line. Please see MSU Extension-Oakland County's publications as well as the MSU Extension Bookstore on campus.

Please contact our office (248/858-0880) for assistance.

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