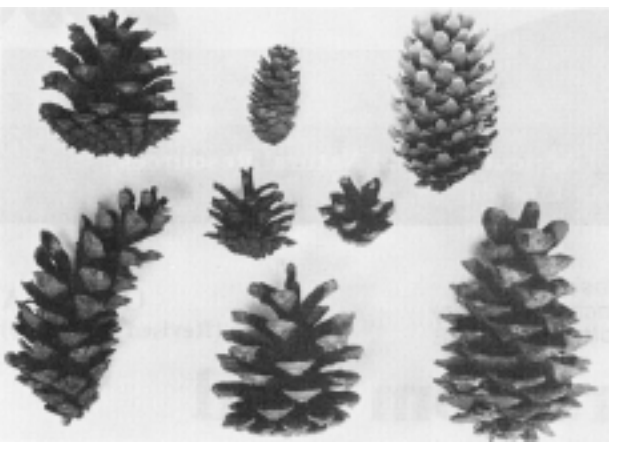
Growing Conifers from Seed



Cones of some conifers grown in Nebraska. (Top row, L–R) ponderosa pine, Black Hills spruce and Colorado blue spruce, (middle row, L–R) Scotch pine and jack pine, (bottom row, L–R) eastern white pine, Austrian pine and limber pine.

Collecting

PINE — Pine cones should be collected in the fall when the cones begin to crack and open. See Table I for specific dates. Place the cones on a dry surface in the sun until they open. The exception to this is jack pine. While some jack pine cones open each year, especially those in full sun, most of the cones require additional heat to open. Jack pine cones will need 2–4 hours in a 150°F oven.

Shake or tumble the cones over a screen to remove the seeds. The wings on the seeds may be removed. Rub the seeds between your hands and blow the wings away. Dewinging is not necessary but will make storage and planting easier when processing large amounts of seed. Scotch pine seeds are delicate and should be handled carefully.

If the seeds are to be stored before stratification, they should be put in clean sealed jars and kept at 35–40°F, a common refrigerator temperature.

SPRUCE — Spruce cones should be collected when they begin to open in the fall, mid August–October. Dry the cones in the sun until they are fully open and the seeds fall out easily when the cones are shaken, or place in an oven at 100–120°F for 6–24 hours. Use a thermometer to check the temperature, as higher temperatures will kill the seeds. Spruce cones often have a high percentage of empty seeds. The empty seed can be separated from the good seed by putting the seeds in ethyl alcohol. The empty seed will float and should be discarded. The seeds can be dewinged and stored by the same methods described for pine.

CEDAR AND JUNIPER — Cedar and juniper seed should be collected from September through early December. The berry-like cones are blue when ripe. Rocky Mountain juniper seeds take two years to mature, so do not pick the immature green cones.

Soak the cones in a weak lye solution (one teaspoon of lye per gallon of water) for one or two days, then rinse well with water. If the cones are still sticky, repeat the lye soaking and rinsing. Dry the fruits, then separate the seeds from the pulp by rubbing on a screen. Next soak the seeds and pulp in water. The pulp and empty seeds will float and can be discarded. The good seeds should be stored in the same way as pine seeds.

Stratification

PINE AND SPRUCE — Stratification for pine and spruce is a fairly easy process. The seeds have mild internal dormancy. Soak the seeds in room temperature water for two days (change the water after 24 hours) place in moist sand in a clean plastic bag and store at 35–40°F. The bag should be loosely tied. The length of time needed for stratification is listed in Table II.

CEDAR AND JUNIPER — The junipers have both internal and seed-coat dormancy. Soaking eastern redcedar seed in a weak solution (1 percent) of citric acid for four days before stratification will increase germination. Rinse the seeds well with water before stratifying. Stratify the seed by layering in moist sand or peatmoss in a clean plastic bag and keep it at 35–40°F for 30–120 days.

Rocky Mountain juniper seed should be stratified for six months before planting. Layer the seeds in damp peatmoss in a clean plastic bag. Loosely tie the bag and keep it at 35–40°F for six months. Begin stratifying the seed in January and plant in July. The seed will germinate the following spring.

Planting and Care

Seeds should be planted promptly after stratification. If the seed is allowed to dry out, dormancy may be triggered again and your efforts will be wasted.

A large seed bed is not needed for a home operation, but the area should be selected carefully. The area should be well-drained and fairly open, close to a source of water and protected from animals. An acid, sandy loam is best for most conifers. The addition of peatmoss will help make the soil more acidic. Add fertilizer to a poor soil. A 4' x 8' seedbed would need about half a pound of commercial fertilizer like ammonia nitrate 33 percent or ammonium phosphate 12-20-0. The fertilizer should be worked into the soil well before planting.

The planting times for the most common conifers grown in Nebraska are given in Table II. When planting in the spring, wait until all danger of frost is past.

The best method of seeding is in uniform rows. Space the rows six to eight inches apart, leaving two foot walkways about every six rows.

For further information on planting, disease and insect control, read *Growing Conifers from Seed*, www.ianr.unl.edu/pubs/forestry/g380.htm (DJ)

Table I. Cone collection dates.

SPECIES	PRE-RIPE CONE COLOR	RIPE CONE COLOR	WHEN TO COLLECT CONES[1]
Ponderosa Pine	green	brown	August–September
Austrian Pine	yellowish-green	yellowish brown/light brown	September–November
Scotch Pine	green	grayish or dull brown or cinnamon brown	September–October
Jack Pine	green	tawny yellow to brown	September
White Pine	green	yellow green to light brown	August–September
Black Hills Spruce	green	light brown	Mid August–September
Colorado Blue Spruce	green tinged with red	shiny light brown	September–October
Eastern Redcedar	green	blue	September–November
Rocky Mountain Juniper	green (with bloom)	blue (with waxy white bloom)	Mid September–Mid December

[1]After these dates the cones open and disperse seen naturally.

Table II. Stratification and planting instructions.

SPECIES	WHEN TO PLANT	COMMENTS
Ponderosa Pine	Spring	Stratify for 20–30 days before planting.
Austrian Pine	Spring	Stratify for 35–56 days before planting.
Scotch Pine	Spring	Stratify for 30–60 days before planting.
Jack Pine	Spring	No stratification necessary.
White Pine	Spring	Stratify for 30–60 days before planting.
Black Hills Spruce	Spring	Stratify 30–50 days before planting.
Colorado Blue Spruce	Spring	Stratify 30–50 days before planting.
Eastern Redcedar	August or Spring	No stratification needed if planted in August. Stratify 30–120 days before spring planting.
Rocky Mountain Juniper	July	Start stratification in January. Plant in July.

Water Trees According to Soil Type

The lingering drought makes it necessary to know how to properly provide supplemental water to trees.

Water should be placed where the roots are growing. Research shows more than 70 percent of tree roots are in the top 24 inches of soil. Water placed below that cannot be absorbed by the roots.

Trees require variable amounts of moisture. In addition to tree size and amount of competition around the tree, the type of soil the tree is planted in is one of the main factors affecting how much moisture is needed.

Sandy soils release stored moisture easily to plants but the amount of water the soil can hold at any one time is low. Clay soils can hold a lot of moisture, but the clay particles hold the water too tightly, making the water unavailable for plants to absorb.

Frequent watering in low amounts is the best way to water trees in sandy soil. Ideally, soil should be moist 18 inches into the ground for as long as the tree is growing. Watering every five to seven days may be necessary to maintain adequate moisture in high temperatures and high winds.

It is almost impossible to overwater trees in sandy soil, though it can be wasteful. When too much water is applied to sandy soil it passes through the soil and isn't available to tree roots.

Proper watering is more difficult in clay soils because water can't easily enter the small pores in clay soils. However, once they are wet, clay soils hold moisture for long periods of time. (DJ)

Recognizing Tree Hazards

A hazard tree may have one or more defects which decreases its structural integrity and gives it an increased potential for failure. One of these treatments may help make your tree safer. Reducing the risk associated with hazardous trees can take many forms. An arborist familiar with hazard tree evaluation may suggest one or more of the following:

REMOVE THE TARGET — While you can't move a home or a nearby power line, you can sometimes move picnic tables, cars, landscape features, etc. to prevent them from being hit by a falling tree.

PRUNE THE TREE — Remove the defective branches of the tree. Since inappropriate pruning may also weaken a tree, it is best done by a Certified Arborist.

CABLE AND BRACE THE TREE — Provide physical support for weak branches and stems to increase their strength and stability.

PROVIDE ROUTINE CARE — Mature trees need routine care in the form of water, fertilizer (in some cases), mulch and pruning as dictated by the season and their structure.

REMOVE THE TREE — Some hazardous trees are best removed. If possible, plant a new tree in an appropriate place as a replacement.

Recognizing and reducing tree hazards not only increases the safety of your property and that of your neighbors, but will also improve the tree's health and may increase its longevity! (DJ)