

RED PINE

Cover Type Guidelines

ROTATION AGES

Mean annual growth culminates earlier in stands periodically thinned to basal area levels below the minimum recommended stocking. Total stand growth is also lower. Growing stands at higher densities and longer rotations will produce a higher annual growth and yield.

<u>Site Index</u>	<u>Rotation Age</u>
45 - 54	100 years
55+	80 years

HARVEST SYSTEMS

Obtain pulpwood, posts, poles, cabin logs, piling, and small sawtimber from intermediate thinnings, high quality sawtimber from the final harvest.

REGENERATION SYSTEMS

Site preparation should be suitable to the site. Poorer sites will only require slash removal by total tree skidding, while better sites will need more extensive preparation such as shearing or scalping. Consider chemical site prep if unwanted vegetation is a problem.

Seeding has not been successful, so plant bare root or containerized stock.

PEST CONSIDERATIONS

The major insect pests of red pine are Saratoga spittlebug, *Aphrophora saratogensis*, and several species of bark beetles. The Saratoga spittlebug causes branch and seedling mortality where alternate hosts are abundant. It can be a serious problem in plantations between 3 and 10 feet in height and should be risk rated. Risk rating is based on the amount of woody shrubs in the plantation and incidence of spittlebug, as determined by a scarcount survey. Routinely conduct scarcount surveys in 3 to 10 foot high plantations during the normal plantation survival surveys. Consult with the Regional I & D Specialist for details on risk rating.

The major diseases of red pine include *Scleroderris* canker, *Gremmeniella abietina*; *Armillaria* root rot, *Armillaria* spp.; *Diplodia* tip blight, *Sphaeropsis ellisii*; and *Sirococcus* shoot blight, *Sirococcus strobilinus*. Two strains of fungus causing *Scleroderris* canker occur in North America. The North American strain is present in northeastern Minnesota where it kills branches of larger trees and can cause mortality to trees under six feet tall. The European strain is presently found only in the northeastern states and Canada where it has caused extensive mortality to a limited number of stands of red and Scots pine of all ages. *Armillaria*

root rot can be an important mortality factor in young stands on former hardwood sites. Both *Diplodia* and *Sirococcus* can cause shoot dieback and can lead to tree mortality through repeated infections. *Diplodia* can form main stem cankers and cause rapid tree death when trees are under stress from drought and hail injury.

Management recommendations are as follows:

1. Remove all overstory pine from a site scheduled for red pine plantings because they are potential carriers of *Diplodia* and *Sirococcus*.
2. New plantings should not be established adjacent to older pine plantations with existing insect and disease outbreaks, without treatment of those problems.
3. Planting site preparation should include:
 - a. removal of pine slash to reduce bark beetle brood material.
 - b. weed control to eliminate or reduce the abundance of alternate hosts of Saratoga s pittlebug.
 - c. breakup of old hardwood stumps where possible to reduce *Armillaria* buildup.
4. To reduce the potential for *Scleroderris* occurrence and spread:
 - a. do not plant red pine in low depressions (frost pockets)
 - b. do not plant red pine within one half mile of an existing Scleroderris infection
 - c. do not replant old infection sites to red pine.
5. Large stands of red pine are conducive to severe insect and disease outbreaks. Plans to plant areas greater than 40 to 60 acres should include the potential use of alternate species (not pines) in strips of two chains or more to split up the red pine blocks.
6. To reduce bark beetle and wood borer damage:
 - a. avoid cutting operations between March 1 and Sep. 1.
 - b. when logging or thinning is done between these dates, remove all material larger than two inches in diameter within three weeks after cutting.
 - c. try not to wound trees during harvest.
 - d. leave branches with the green needles on to aid in rapid drying of unmerchantable stem wood and expose the slash to full sunlight.
 - e. trees stagnating due to wet soil, nutrient deficiencies, drought, defoliation or disease, and pockets of blowdown should be harvested as soon as possible.

WILDLIFE CONSIDERATIONS

Red pine plantations generally provide poor food and cover for game birds and animals but large, oldgrowth trees may be used by birds of prey. Landings can serve as wildlife openings and provide needed food plants. Red pine plantations can be planned to provide better habitat values. Natural stands are fair habitat because of species mix and irregular spacing.

PREFERRED SITE CONDITIONS

Red pine is typically managed on moderately well to well drained sand, loamy sand, and sandy loam soils. This species requires a minimum 30" rooting zone free of root restricting barriers such as saturated soils, bedrock, or very dense soil horizons. The pH range should be between 5.5 and 7.0. This species does not thrive well on soils with high CaCO₃ concentrations (pH 8.0+) at the surface.

Even though red pine is a low moisture and nutrient demanding species, it can grow very well on rich, fine textured soils (L, Sil, C) if these soils have at least 30" of well aerated rooting zone. Red pine does not compete well with the denser vegetation on these richer sites and does not tend to utilize richer sites as effectively as other species