



FORESTRY FACT SHEET
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Chemical Weed Control in Shelterbelts and Forest Plantations

Competition from broad-leaved weeds and grasses is a major obstacle to successful establishment of windbreaks, shelterbelts, Christmas tree plantings and forest plantations.

In some seasons and in certain regions, precipitation can barely support tree growth. Unwanted vegetation competes with trees for soil moisture, nutrients and growing space. Where weed competition is severe, a high percentage of trees often die in the first few years. Many surviving trees may be stunted and deformed. Chemicals that control weeds for a full growing season will eliminate hand labor or the need for special equipment.

When and How to Apply

Herbicides applied to the soil must be applied before the weeds emerge. Fall application is often more desirable because the herbicide is in place when early spring moisture can move the chemical into the soil. Fall applications should be made just before the soil freezes.

Spring treatments can be equally effective if applied before weeds emerge. Applications made in early April usually are more effective than those made in May.

Best results will be obtained if the soil surface is free of trash. Trash will interfere less with granules than with spray formulations. Do not disturb treated areas. Avoid throwing untreated soil into the treated areas when cultivating between the tree rows.

Be sure to use the rates recommended on the label. Use enough water to distribute the herbicide uniformly. The application equipment should be calibrated accurately. Too much chemical can cause injury to the trees. Refer to Ag. Chem. Fact Sheet 5, "How to Calculate Herbicide Rates and Calibrate Herbicide Applicators," for instructions on calibrating equipment.

Apply the herbicide in a band at least three feet wide. A trip down each side of the tree row is the best way to apply the herbicide. Avoid getting chemical on the tree leaves. A hand-operated sprayer works well, but it should be shaken periodically to keep wettable powders from settling out. Maintain 30 to 50 lbs. of pressure. Mechanical agitation is desired when using farm sprayers. The nozzle screen should not be finer than 50 mesh. Hand-operated granular applicators may be used to apply granules.

Some chemicals have soil residual properties which result in chemical carryover and possible injury to trees planted in an area already treated. Remove the top 2 to 3 inches of soil before digging the planting hole. This will keep treated soil from falling into the planting hole.

The rates suggested in this fact sheet are based primarily on field results from areas with medium or heavy-textured

soils. Consult the product label for more information on the amount of chemical that may be used in some situations.

Follow the label directions concerning the age and species of trees that may be treated.

Chemical Herbicides

The following recommendations for the use of chemical herbicides in tree plantings are based on investigations by manufacturers and independent researchers at several universities, including the University of Minnesota College of Forestry.

SIMAZINE (tradename PRINCEP) is available as a wettable powder or in granular form. The wettable powder (simazine 80W) contains 80 percent of the active chemical; the granules (simazine 4G) contain 4 percent of the active ingredient. Both forms are used principally as preemergence surface soil treatments on freshly prepared ground to destroy weed seeds as they germinate.

At recommended rates, simazine acts against a broad spectrum of grasses and broad-leaved weeds. It is safe for use around most tree and shrub species planted in windbreaks and forest plantations. It is not recommended on any species of poplar (cottonwood) and willow, nor on newly planted honeysuckle.

A per-acre rate recommended on fine-textured soils and soils high in organic matter is 4 lbs. active ingredient of either simazine 80W or 4G (equivalent to 5 lbs. of the wettable powder and 100 lbs. of the granules as purchased). On coarse sandy soils apply 2 lbs. active ingredient per acre (equivalent to 2½ lbs. of the wettable powder and 50 lbs. of the granules as purchased). *These are rates for ground area actually treated.* Apply simazine 80W in at least 25 gal. of water per acre of area actually sprayed.

Apply simazine before weeds emerge. In established plantings, apply the chemical in late fall or early spring for maintenance weed control. In new plantings on clean-tilled ground, apply during or after tree planting.

Simazine does not injure tree foliage through contact. However, attempt to direct as much chemical as possible to the soil surface for maximum benefit.

Treatment may be a band or broadcast application. On sandy, worn-out soils, 2-ft. bands are generally adequate. In shelterbelts and windbreaks on fertile soils, tall weeds fall across narrow bands and cover the trees, so use 3- to 4-ft. bands.

Do not use simazine more than once a year. Simazine is not recommended on trees under three years of age (including years grown in nursery).

AMIZINE is a combination of a postemergence herbicide (amino-triazole) and simazine. This combination of a preemergence and postemergence herbicide is particularly effective in cleaning up plantations and shelterbelts where trees are overgrown with annual weeds and grasses.

Apply on small weeds in the early part of the growing season or before weeds have matured and gone to seed. The aminotriazole portion kills any vegetation, both grasses and broad-leaved weeds, and the simazine acts as a preemergence herbicide to kill germinating seeds which otherwise would reinstate the treated area.

Don't treat tall, mature weeds. Instead, mow them off to ground line and remove them. Then spray regrowth as it appears.

Amizine can be used in conifer and broad-leaf tree plantings if the spray is kept off the tree foliage. Where the spray contacts tree foliage, the green chlorophyll is broken down and the leaves or needles turn white and die.

For weed control in reforested areas and shelterbelts, apply amizine at a rate of 7 lbs. of actual material as purchased in 100 gal. of water per acre treated.

Amizine is usually applied in band treatments. Apply the herbicide with a boom spray with nozzles 4 to 6 inches above ground designed to cover a 2-ft. swath immediately adjacent to the tree stems. Use a low-pressure, cone-shaped, coarse spray directed away from tree foliage.

When planting old fields where perennial grasses are a problem, spray amizine in a band ahead of the slit tree planter. Practically no chemical contacts the trees with this method.

With a backpack sprayer, one may spot-treat during the growing season using one cup of amizine, as purchased, in 4 gal. water. This mixture will treat 1,600 sq. ft. at the recommended rate.

DIURON (tradename KARMEX) is available as a wettable powder containing 80 percent active ingredient. Apply in early spring before weed seeds germinate. Diuron is only slightly more soluble than simazine. It usually gives good control of several kinds of annual weeds including foxtail, annual bromegrasses (cheatgrass), ragweed, pigweed and Russian thistle for one season.

Diuron is not recommended on plantings less than one year old. It may be used on American and Siberian elm, honeysuckle, eastern red cedar, caragana, Russian olive, green ash, cottonwood, ponderosa pine and several other species listed on the label.

Use 5 lbs. active ingredient (6¼ wettable powder) per acre. For treating small areas with a hand sprayer, mix 0.7 oz. (3½ level tablespoons) of Karmex in enough water to treat a 1½-ft. band on each side of 100 ft. of tree row.

DICHLLOBENIL (tradename CASORON) is available as a wettable powder containing 50 percent active ingredient, or as a granule containing 4 percent active ingredient. Dichlobenil will control pigweed, lambsquarters, smartweed, foxtail, some other annual weeds and shallow-rooted perennial weeds. Control of deep-rooted perennials has been reported, but has been somewhat inconsistent in limited trials.

Apply dichlobenil in late fall or early spring before weed seeds germinate and before the soil temperature reaches 50° F. Trees should be established at least four weeks before treating. It is labeled for use on American and Siberian elm, caragana, cottonwood, hackberry, green ash, Russian olive, eastern red cedar and others listed on the label. Dichlobenil has a shorter residual period than diuron or simazine and usually provides adequate weed control for shorter periods.

Use 6 lbs. active ingredient (12 lbs. wettable powder or 150 lbs. granules) per acre treated. For treating small areas with hand-operated equipment, apply 16.5 oz. (2¼ level cups) of granules in a 3-ft. band over 100 ft. of tree row. For wettable powder, apply 1.3 oz. (2½ level tablespoons) in a 1½-ft. band on each side of 100 ft. of tree row. Use on a trial basis, as local conditions may affect performance.

TRIFLURALINE (tradename TREFLAN) has a special product label for use on ornamental trees and shrubs. It is available as a liquid containing 4 lbs. active ingredient per gal. or as a granule containing 5 percent active ingredient. Apply either formulation before planting, and incorporate with a power-driven rotary tiller, tandem disc or similar implement. Granules may be applied after planting, but they require incorporation or rainfall to move the chemical into the soil. Use 1 lb. active ingredient (1 qt. liquid or 20 lbs. granules) per acre. It will control several kinds of annual weeds, although it is more effective on grasses than broad-leaved weeds. Late-season cultivation is usually required. Trifluralin may be used on lilac, several species of maple, pine and other species listed on the label.

GLYPHOSATE (tradename ROUNDUP) is an effective herbicide applied as a spray on the foliage of actively growing vegetation. It is not selective, so keep spray drift from getting on existing trees and shrubs. Glyphosate is not active through the soil and leaves no residue in the soil that affects non-target plants. Normal control practices are needed to control annual weeds after glyphosate applications. This herbicide is especially effective for the control of quackgrass when applied at 1 to 1½ lbs. per acre. Underground rhizomes as well as topgrowth are killed. Other vegetation also is killed.

SAFETY FIRST – READ AND FOLLOW ALL LABEL DIRECTIONS AND PRECAUTIONS. FEDERAL REGULATIONS AND THE LABEL DIRECTIONS ARE SUBJECT TO CHANGE.

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