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Cooperative Extension South Dakota State University

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FS 414  
(Revised)

# Chemical Weed Control in Trees

COOPERATIVE EXTENSION SERVICE  
SOUTH DAKOTA STATE UNIVERSITY  
U. S. DEPARTMENT OF AGRICULTURE



# Chemical Weed Control in Trees

FS 414

By Leon J. Wrage, Extension agronomist—weeds  
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Weeds affect trees the same way they affect other crops. They rob them of moisture, plant food and light.

Preventing weed growth in tree rows is especially important. Tree survival and growth are always better in plantings when competition for moisture is minimal. Chemicals that control weeds in the row for a full growing season will eliminate hand work or the need for special equipment. Herbicides provide economical weed control. The cost for chemical to treat a band 3 feet wide and one-half mile long is less than \$3 using the lowest cost soil-applied herbicide. Granules cost more per pound of active ingredient than other formulations.

There is less risk of injury to trees from soil-applied herbicides in high organic matter and medium- or heavy-textured soils. There is risk of injury on low organic matter, sandy-textured soils.

## WHEN AND HOW TO APPLY

Herbicides that are applied to the soil must be applied before the weeds emerge. Fall application is often more desirable because the herbicide is in place so early spring moisture can move the chemical into the soil. Fall applications are more convenient in most farm work schedules. Fall applications should be made just before the soil freezes.

Spring treatments, however, 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 rate recommended on the label. Use enough water to get uniform distribution of the herbicide. The application equipment should be calibrated accurately. Too much chemical can cause injury to the trees. Refer to fact sheets *Checking Weed Sprayers*, or *Calibrating Small Plot Sprayers* for instructions on calibrating equipment.

Apply the herbicide in a band 3 feet wide. A trip down each side of the tree row spraying an 18-inch band is the best way to apply the herbicide. Avoid

getting chemical on the tree leaves. A hand-operated sprayer works good, but should be shaken periodically to keep wettable powders from settling out. Maintain 30 to 50 pounds 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 the next season. Replacement trees may be injured from this carryover if they are planted in the treated area. 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.

## ANNUAL WEEDS

**Diuron** (tradename *Karmex*). This chemical is available as a wettable powder containing 80% 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 established less than one year. 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 pounds active ingredient (6¼ wettable powder) per acre in the area treated. For treating small areas with a hand sprayer, mix 0.7 ounces (3½ level tablespoons) of *Karmex* in enough water to treat a 1½-foot band on each side of 100 feet of tree row.

**Simazine** (tradename *Princep*). This chemical is available as a wettable powder containing 80% active ingredient or as a granule containing 4% active in-



redient. Apply in the late fall just before the soil freezes or in early spring before weed seeds germinate. It usually gives good control of many broadleaved and grassy annual weeds for one season. Shelterbelt transplants should be at least 3 years old before treating with simazine. It may be used on American and Siberian elm, caragana, Eastern red cedar, Russian olive, Scotch pine, Norway spruce and others listed on the label.

Use 4 pounds active ingredient (5 pounds of wettable powder or 100 pounds of granules) per acre treated. For treating small areas with hand-operated equipment, mix 0.6 ounces (2½ level tablespoons) of wettable powder in enough water to treat a 1½-foot band on each side of 100 feet of row. For granules, apply 11.2 ounces (1⅓ level cups) in a 3-foot band over 100 feet of row.

If weeds have emerged in the spring, mix amitrole (*Amino Triazole* or *Weedazol*) with the correct amount of simazine. Use 1 pound of amitrole (2 pounds of soluble powder) per acre treated. To spray a 1½-foot band on each side of 100 feet of row, mix ⅔ level tablespoon of amitrole product with simazine. This combination is available as a commercial premix (tradename *Amazine*) containing 15% amitrole and 45% simazine. Apply 7 pounds of *Amazine* wettable powder per acre. Use approximately 3 level tablespoons of product to spray a 1½-foot band on each side of 100 feet of tree row.

**Do not allow spray to come in contact with the trees.** Amitrole is registered for use on noncropland areas only. Food or feed should not be harvested or grazed from treated areas. Applications of simazine made late in the spring after weeds have emerged usually result in less consistent weed control than late fall or early spring treatments.

**Dichlobenil** (tradename *Casoron*). This chemical is available as a wettable powder containing 50% active ingredient or as a granule containing 4% active ingredient. The granules have been used in tests in South Dakota. 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 the early spring before weed seeds germinate and before the soil temperature reaches 50°F. Trees should be established at least 4 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 pounds active ingredient (12 pounds wettable powder or 150 pounds granules) per acre treat-

ed. For treating small areas with hand-operated equipment, apply 16.5 ounces (2¾ level cups) of granules in a 3-foot band over 100 feet of tree row. For wettable powder, apply 1.3 ounces (2½ level tablespoons) in a 1½-foot band on each side of 100 feet of tree row. Use on a trial basis as local conditions may affect performance.

#### NEW TRANSPLANTS AND YOUNG TREES

Chemicals for weed control in newly transplanted trees and young trees have been tested on a limited basis. Several chemicals appear promising, but some currently are not labeled for use in this manner.

Simazine (tradename *Princep*) may be used on some species of new shelterbelt transplants if the trees are at least 3 years old. In several tests, simazine, at rates between 2 and 4 pounds active ingredient per acre has given good annual weed control when applied shortly after trees were transplanted and before weeds emerge. There appeared to be no injury to caragana, Eastern red cedar, ponderosa pine, green ash, cottonwood, American elm or apricot in these tests. Diuron (tradename *Karmex*) gave similar results but currently is not labeled for use in this manner. Dichlobenil (tradename *Casoron*) is labeled for use on new transplants if they are not treated until 4 weeks after transplanting. Dichlobenil on new plantings has not been tested in South Dakota.

Trifluralin (tradename *Treflan*) has a special product label for use on ornamental trees and shrubs. It is available as a liquid containing 4 pounds active ingredient per gallon or as a granule having 5% active ingredient. Apply either formulation before planting and incorporate with a power driven rotary tiller, tandem disk, or similar implement. Granules may be applied after planting, but require incorporation or rainfall to move the chemical into the soil. Use 1 pound active ingredient (1 quart liquid or 20 pounds granules) per acre. It will control several kinds of annual weeds, although it is more effective on grasses than broadleaved 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.

Limited tests in South Dakota using trifluralin at 2 pounds active ingredient per acre resulted in no injury to the species of trees in the test. Weed control was satisfactory. The herbicide was applied in a 1½-foot band and incorporated with a power-driven rotary tiller before transplanting. Federal agencies have not approved the use of more than 1 pound per acre active ingredient.

Limited field trials have been conducted using chloramben (tradename *Amiben*) at 6 pounds active ingredient per acre. There appeared to be no injury to the species of trees treated in these trials. Weed control was fair to good. Chloramben currently is not labeled for use in tree plantings.



Table 1. Summary of certain chemicals and suggested rates to use for weed control in trees. Note the text of this fact sheet and product labels for information on other chemicals or for more information concerning rates to use.

CHEMICAL		FORMULATION	RATE lb/A active	AMOUNT OF PRODUCT	
Common Name	Trade Name			Per Acre	3-foot band on 100 feet of row <sup>1</sup>
<b>Annual Weeds</b>					
simazine	<i>Princep</i>	80% wp 4% gran	4	5# wp 100# gran	2½ tbsp 1⅓ cup
simazine +	<i>Princep</i> +	80% wp	4	5# wp	2½ tbsp
amitrole	<i>Amino Triazole</i> or <i>Weedazol</i>	50% sol p	1	2# sol p	⅔ tbsp
	<i>Amazine</i>	45 + 15% wp	3+1	7# wp	3 tbsp
diuron	<i>Karmex</i>	80% wp	5	6¼ # wp	3½ tbsp
dichlobenil	<i>Casoron</i>	50% wp 4% gran	6	12# wp 150# gran	2½ tbsp 2¾ cup
<b>Broadleaved Perennials</b>					<b>Amount for 1 sq. rod</b>
amitrole	<i>Amino Triazole</i> or <i>Weedazol</i>	50% wp	6	12# wp	3⅔ tbsp
amitrole-T	<i>Amitrol-T</i> <i>Cytrol</i>	2#/gal	4	2 gal	3½ tbsp
<b>Quackgrass</b>					<b>Amount for 1 sq. rod</b>
simazine	<i>Princep</i>	80% wp	4	5# wp	2 tbsp
simazine +	<i>Princep</i> +	80% wp	4	5# wp	2 tbsp
amitrole	<i>Amino Triazole</i> or <i>Weedazol</i>	50% sol p	4	8# wp	2½ tbsp
simazine +	<i>Princep</i> +	80% wp	4	5# wp	2 tbsp
amitrole-T	<i>Amitrol-T</i> or <i>Cytrol</i>	2#/gal	2	1 gal	1¾ tbsp

<sup>1</sup>Approximate amount

Key to abbreviations: wp=wettable powder, tbsp=level tablespoons, sol p=soluble powder, gran=granules

### BROADLEAVED PERENNIALS

**Amitrole and amitrole-T.** Amitrole (tradename *Amino Triazole* or *Weedazol*) is available as a soluble powder containing 50% active ingredient. Amitrole-T (tradename *Amitrol-T* or *Cytrol*) is available as a liquid containing 2 pounds active ingredient per gallon.

Use 6 pounds of amitrole (12 pounds of 50% soluble powder) or 4 pounds of amitrole-T (2 gallons) per acre. For small areas, mix 3⅔ level tablespoons of amitrole soluble powder or 3½ level tablespoons of amitrole-T liquid in enough water to spray one square rod. **Be sure to keep the spray off the tree leaves and stems.** These chemicals are more effective on thistles and quackgrass than on most other broadleaved per-

ennial weeds. These chemicals are labeled for use in noncropland areas only. Food or feed should not be harvested or grazed from treated areas.

**2,4-D.** To reduce the stands of thistles, leafy spurge, Russian knapweed, field bindweed, hoary cress, or other broadleaved perennial weeds 10-25% in one year, use ¾ to 1½ pounds of 2,4-D acid equivalent per acre twice each season (early June and late August). Use higher rates on leafy spurge, Russian knapweed, and hoary cress. Use low volatile formulations of 2,4-D such as an emulsifiable acid (tradename *Weedone 638*), an oil soluble amine (tradename *Emulsamine 3E* or *Dacamine*) or lithium salt (tradename *Lithate DSP*). Avoid spraying when temperatures are high. Do not allow spray drift to contact leaves of trees or stems—it will cause injury.



AMS (tradename *Ammate X*). This chemical has been used at rates of 5 to 7 pounds of product per square rod to control several broadleaved perennial weeds. No injury has been observed. AMS currently is not labeled for use in shelterbelts and any problems arising from its use are the responsibility of the person using the chemical.

### QUACKGRASS

Spray simazine (tradename *Princep*) in one fall application or make a split application in the fall and spring. Use a mixture of amitrole (tradename *Amimo Triazole* or *Weedazol*) or amitrole-T (tradename *Amitrol-T* or *Cytrol*) with simazine in the spring if quackgrass has started to grow.

Apply simazine at the rate of 4 pounds active ingredient per acre in the fall (5 pounds wettable powder). This is approximately 2 level tablespoons of wettable powder per square rod.

For split applications, use 2 pounds active ingredient of simazine (2½ pounds wettable powder) in the fall and again in the spring after quackgrass begins growth. This is approximately 1 level tablespoon of wettable powder per square rod.

In the spring, if quackgrass has started to grow, mix amitrole at the rate of 4 pounds active ingredient (8 pounds soluble powder) per acre or amitrole-T at the rate of 2 pounds active ingredient (1 gallon liquid) per acre with simazine at 4 pounds active ingredient (5 pounds wettable powder) per acre. The correct amount of product for a one square rod area is approximately 2½ level tablespoons of amitrole or 1¾ tablespoons of amitrole-T mixed with 2 level tablespoons of simazine.

Apply the spray to the base of the trees. Do not allow spray to contact the trees. Amitrole and amitrole-T are registered for use in noncropland areas only. Food or feed should not be harvested or grazed from treated areas.

### Safety First

Read and follow all label directions and precautions. Federal regulations and the label directions are subject to change.

The use of tradenames does not imply endorsement of one product over another.

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