



STATE OF WASHINGTON

DEPARTMENT OF AGRICULTURE

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**WASHINGTON STATE  
TRICLOPYR BUTOXYETHYL ESTER (BEE)  
USE SUMMARY**

- Triclopyr butoxyethyl ester (BEE) is a selective foliar- and root-absorbed, translocated herbicide used for control of woody and broadleaf plants along rights-of-way, in forests, on industrial lands, and on grasslands and parklands,
- Some of the products containing triclopyr BEE may be classified as Restricted Use Pesticides (RUPs). RUPs may be purchased and used only by licensed applicators.
- Triclopyr BEE is classified by EPA as toxicity class III – slightly toxic. It can cause eye irritation. Products containing triclopyr BEE will bear the signal words, “Danger” or “Caution” on the label, depending on the specific formulation. Triclopyr BEE belongs to the pyridine chemical class.
- On an acute basis, triclopyr BEE is moderately to highly toxic to freshwater fish and highly toxic to estuarine/marine fish. Estuarine/marine acute toxicity testing is required for triclopyr because of forestry, rights-of-way and turf uses. The compound has little if any potential to accumulate in aquatic organisms.
- The triclopyr degradate, TCP, however, is considered to be persistent in aquatic environments and considered to have slight to moderate acute toxicity to freshwater warm- and cold-water fish species.

**Current Washington State Use Practices**

CROP	WASS <sup>1</sup> 2002 EST. ACRES	EST. % ACRES TREATED	EST. LBS. A.I./ACRE	# OF APPS	EST. ACRES TREATED	EST. LBS. A.I. APPLIED
CRP	2,900,000	1	0.50	1		
Forestry	4,300,000					
Non-cropland & ROW						
Orchard, abandoned						
Pasture & rangeland	7,000,000	1	0.50	1	70,000	35,000
Turfgrass, lawn & sod						

<sup>1</sup> Washington Agricultural Statistics Service

<sup>2</sup> Commodities noted in **BLUE** have not had peer review input.

## **MAJOR USES (listed alphabetically):**

*The major use listing supplies the most commonly used formulations of the active ingredient. No discrimination or endorsement is intended.*

*The pesticide labels take precedence over any information contained herein. It is the responsibility of the user to comply with the label directions provided.*

*The following pesticide use summary reflects the general pesticide practices for the listed commodities. The use information is not intended to reflect the pesticide application practices of any individual.*

**NOTE:** Triclopyr BEE in formulation with certain phenoxy hormone-type herbicides is a Restricted Use Pesticide (RUP) in some areas of Washington state. Refer to the following chapters of the Washington Administration Code:

[Chapter 16-228-1231 WAC](#)

[Chapter 16-230-610 WAC](#)

[Chapter 16-230-615 WAC](#)

(All high volatile ester and dust formulations of phenoxy-hormone type herbicides are prohibited in Washington state. See [Chapter 16-228-1250 WAC](#) and [Chapter 16-228-600 WAC](#).)

## **CONSERVATION RESERVE PROGRAM (CRP):**

- Triclopyr BEE plus 2, 4-D (Crossbow) may be used control annual broadleaf weeds or seedling perennial broadleaf weeds on land in CRP.
- Crossbow may be applied to control the following weeds:
  - established perennials
    - Crossbow may be applied at a rate of up to 1.5 gallons per acre.
  - annual broadleaf weeds and/or seedling perennial broadleaf weeds
    - Crossbow may be applied at a rate of up to 1 – 2 quarts per acre.
- Apply Crossbow only when perennial grasses are established and when weeds are growing well.
- If Crossbow is applied during conditions that stress grasses, potential for injury to grasses will be increased.

## **FORESTRY:**

- Weed and brush control in commercial forests to provide larger, higher quality forests and reduce the time needed to bring the crop to maturity.
- 2, 4-D and triclopyr are relatively non-injurious to Douglas fir seedlings during the dormant season but will injure noble fir and ponderosa pine.
- The forest industry uses triclopyr BEE to control herbaceous and woody vegetation.
  - Broadcast application

- Triclopyr BEE (Garlon 4) is applied from October – March. 2, 4-D is also used but applied March-May. Ten to thirty percent of broadcast applications in forestry may require the use of these chemicals.
- Typically, triclopyr BEE is used in combination with a soil residual herbicide.
- Typically, the rate is 2.5 – 5.0 percent herbicide in solution (1 – 2 quarts per acre) applied using backpack sprayers or helicopter spray systems.
- This is generally a one-time treatment in a vegetation management rotation.
- Individual plant application
  - Triclopyr BEE (Garlon 4) is applied from October – February to control individual woody plants (scotchbroom, big leaf maple, vine maple).
  - Ten to thirty percent of forest acres may require this treatment.
  - Triclopyr BEE (Garlon 4) is applied at a rate of 1 – 10 fluid ounces per individual plant. Rate depends on plant size.
  - The herbicide is applied as a thinline treatments or spray-to-wet treatments with backpack sprayers.
  - This is generally a one-time treatment in a vegetation management rotation.
  - Refer to Chapter 222-38 WAC for specific Washington state requirements regarding the handling, storage and application of forest chemicals. These rules are intended to implement best management practices designed to eliminate the direct entry of pesticides to water.

#### **NON-CROPLAND AND RIGHT-OF-WAY (ROW):**

- Triclopyr BEE may be used control certain perennial broadleaf weeds and woody plants in rights-of-way, roadsides, fenceline and other non-crop areas.
- The forest industry uses triclopyr BEE to control encroaching vegetation on forest roads.
  - The majority (90 plus percent) of any roadside spray project is treated with 2, 4-D.
  - Depending on the vegetation species, ten to thirty percent of the project may be treated with 2, 4-D tank-mixed with triclopyr BEE. Glyphosate (Accord Concentrate) may also be used in combination with 2, 4-D and triclopyr BEE.
  - Typically, the rate is 2.5 – 5.0 percent herbicide in solution. Rate is dependant on the intensity of the target vegetation.
  - Applications occur from the later part of May through the first part of August using an injection system that controls the herbicides/rates being sprayed by computer-calibrated "push-button" system.
  - Forest roads need to be re-treated every 2 – 5 years.
  - Refer to Chapter 222-38 WAC for specific Washington state requirements regarding the handling, storage and application of forest chemicals. These rules are intended to implement best management practices designed to eliminate the direct entry of pesticides to water.
- For general use on non-cropland and rights-of way:

- Triclopyr BEE (Garlon 4) may be applied at a rate of 1 – 8 pounds active ingredient per acre when woody plant and weeds are actively growing. The application rate depends on weed species and environmental conditions. Triclopyr BEE may be used in the dormant season.
- Triclopyr BEE plus 2, 4-D (Crossbow) may be applied at a rate of 1 quart to 4 gallons product per acre during warm weather when brush and weeds are actively growing. The application rate depends on weed species and environmental conditions. Crossbow will control most species of unwanted woody plants and annual and perennial broadleaf weeds.

### **ORCHARD, ABANDONED:**

- Triclopyr BEE plus 2, 4-D (Crossbow LV - WA Special Local Needs #WA-010038) may be used to control unwanted trees in abandoned orchards.
  - Crossbow is used as a 4 percent mixture with dormant oil or diesel oil (4 gallons Crossbow per 100 gallons of spray) for basal applications.
  - Crossbow is applied undiluted for hack-and-squirt methods.
  - This treatment kills unwanted trees and prevents re-growth from cut stumps in orchards that are abandoned or no longer managed for production. When an orchard is pulled, roots remain near the surface. These roots sprout and grow, setting fruit in the third year. Fruit growing in these root-sucker trees may host codling moth. This pest is not only hard to control but can be economically devastating.

### **PASTURE AND RANGELAND:**

- Triclopyr BEE may be used control certain perennial broadleaf weeds and woody plants in pasture and rangeland. Controlling undesirable plants is an important part of overall pasture and range management.
- Triclopyr BEE (several) may be applied when plants are actively growing at a rate of 0.25 – 2.0 pounds active ingredient per acre.
- Pastures containing desirable broadleaf forbs, especially legumes, should not be treated with triclopyr BEE. Haying and grazing restrictions vary with application rate and livestock type.
- Triclopyr BEE plus 2, 4-D (Crossbow) may be applied during warm weather to control actively growing woody plants and annual and perennial broadleaf weeds:
  - spot treatment – post-emergence
    - 1 to 1.5 percent mixture in water.
  - broadcast application – post-emergence
    - 1.5 gallon per acre (1.5 pounds active ingredient triclopyr and 3 pounds active ingredient 2, 4-D.)
  - No forage may be sold for commercial purposes.

### **TURFGRASS, LAWN & SOD:**

- Triclopyr BEE (Turflon Ester Specialty Herbicide) may be used to effectively control violets, ground ivy and *Oxalis* in Kentucky bluegrass, perennial ryegrass or tall fescue.
- Triclopyr BEE is generally less effective by itself than in mixtures. Tank-mixed with commonly used three-way herbicide mixtures to increase weed control spectrum.

- Application rate depends on weed species and environmental conditions. Applications should be made at least 4 weeks apart.
- Tricloyr BEE plus 2, 4-D (Turflon D) controls a broad range of common weeds.

**PRODUCT NAMES & LABELED CROP:**

<b>PRODUCT NAME</b>	<b>CROP</b>
CROSSBOW L LOW VOLATILE WEED & BRUSH HERBICIDE	CONSERVATION RESERVE PROGRAM
CROSSBOW L LOW VOLATILE WEED & BRUSH HERBICIDE	DITCH BANK
CROSSBOW L LOW VOLATILE WEED & BRUSH HERBICIDE	FENCEROW
CROSSBOW L LOW VOLATILE WEED & BRUSH HERBICIDE	GRASS HAY
CROSSBOW L LOW VOLATILE WEED & BRUSH HERBICIDE	INDUSTRIAL SITE
CROSSBOW L LOW VOLATILE WEED & BRUSH HERBICIDE	NONCROP NON-AGRICULTURAL AREA
CROSSBOW L LOW VOLATILE WEED & BRUSH HERBICIDE	PASTURE
CROSSBOW L LOW VOLATILE WEED & BRUSH HERBICIDE	RANGELAND
CROSSBOW L LOW VOLATILE WEED & BRUSH HERBICIDE	RIGHT-OF-WAY (ROADSIDE)
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL	CONSERVATION RESERVE PROGRAM
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL	DITCH BANK
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL	FENCEROW
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL	FOREST
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL	GRASS
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL	GRASS HAY
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL	INDUSTRIAL SITE
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL	NONCROP NON-AGRICULTURAL AREA
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL	PASTURE
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL	RANGELAND
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL	RIGHT-OF-WAY (ROADSIDE)
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL (SLN: UNWANTED TREES IN ABANDONED ORCHARDS)	APPLE
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL (SLN: UNWANTED TREES IN ABANDONED ORCHARDS)	APRICOT
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL (SLN: UNWANTED TREES IN ABANDONED ORCHARDS)	CHERRY
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL (SLN: UNWANTED TREES IN ABANDONED ORCHARDS)	CHESTNUT
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL (SLN: UNWANTED TREES IN ABANDONED ORCHARDS)	CRABAPPLE
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL (SLN: UNWANTED TREES IN ABANDONED ORCHARDS)	FILBERT
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL (SLN: UNWANTED TREES IN ABANDONED ORCHARDS)	PEACH
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL (SLN: UNWANTED TREES IN ABANDONED ORCHARDS)	PEAR
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL (SLN: UNWANTED TREES IN ABANDONED ORCHARDS)	PLUM
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL (SLN: UNWANTED TREES IN ABANDONED ORCHARDS)	PRUNE
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL (SLN: UNWANTED TREES IN ABANDONED ORCHARDS)	QUINCE

UNWANTED TREES IN ABANDONED ORCHARDS)	
CROSSBOW LOW VOLATILE WEED & BRUSH CONTROL (SLN: UNWANTED TREES IN ABANDONED ORCHARDS)	WALNUT
GARLON 4 SPECIALTY HERBICIDE (SLN: NON-CROPLAND CHEMICAL MOWING)	ASPHALT/CEMENT
GARLON 4 SPECIALTY HERBICIDE (SLN: NON-CROPLAND CHEMICAL MOWING)	INDUSTRIAL SITE
GARLON 4 SPECIALTY HERBICIDE (SLN: NON-CROPLAND CHEMICAL MOWING)	NONCROP NON-AGRICULTURAL AREA
GARLON 4 SPECIALTY HERBICIDE (SLN: NON-CROPLAND CHEMICAL MOWING)	RIGHT-OF-WAY (RAILROAD)
GARLON 4 SPECIALTY HERBICIDE (SLN: NON-CROPLAND CHEMICAL MOWING)	RIGHT-OF-WAY (ROADSIDE)
GARLON 4 SPECIALTY HERBICIDE (SLN: NON-CROPLAND CHEMICAL MOWING)	RIGHT-OF-WAY (UTILITY)
GARLON 4 SPECIALTY HERBICIDE (SLN: R-O-W,RAILROADS & PINE STAND w/PICLORAM)	FOREST
GARLON 4 SPECIALTY HERBICIDE (SLN: R-O-W,RAILROADS & PINE STAND w/PICLORAM)	GRASS HAY
GARLON 4 SPECIALTY HERBICIDE (SLN: R-O-W,RAILROADS & PINE STAND w/PICLORAM)	NONCROP NON-AGRICULTURAL AREA
GARLON 4 SPECIALTY HERBICIDE (SLN: R-O-W,RAILROADS & PINE STAND w/PICLORAM)	RIGHT-OF-WAY (RAILROAD)
GARLON 4 SPECIALTY HERBICIDE (SLN: R-O-W,RAILROADS & PINE STAND w/PICLORAM)	RIGHT-OF-WAY (ROADSIDE)
GARLON 4 SPECIALTY HERBICIDE (SLN: R-O-W,RAILROADS & PINE STAND w/PICLORAM)	RIGHT-OF-WAY (UTILITY)
GARLON 4 SPECIALTY HERBICIDE	DITCH BANK
GARLON 4 SPECIALTY HERBICIDE	FARM BUILDING AREA AROUND
GARLON 4 SPECIALTY HERBICIDE	FENCEROW
GARLON 4 SPECIALTY HERBICIDE	FOREST
GARLON 4 SPECIALTY HERBICIDE	FOREST CONIFER RELEASE/SITE PREPARATION
GARLON 4 SPECIALTY HERBICIDE	GRASS HAY
GARLON 4 SPECIALTY HERBICIDE	INDUSTRIAL SITE
GARLON 4 SPECIALTY HERBICIDE	NONCROP NON-AGRICULTURAL AREA
GARLON 4 SPECIALTY HERBICIDE	RIGHT-OF-WAY (RAILROAD)
GARLON 4 SPECIALTY HERBICIDE	RIGHT-OF-WAY (ROADSIDE)
GARLON 4 SPECIALTY HERBICIDE	RIGHT-OF-WAY (UTILITY)
GARLON 4 SPECIALTY HERBICIDE (SLN: FORESTRY USE)	FOREST
GARLON 4 SPECIALTY HERBICIDE (SLN: FORESTRY USE)	FOREST CONIFER RELEASE/SITE PREPARATION
HI-YIELD TURFLON ESTER SPECIALTY HERBICIDE	TURF
MONTEREY SPURGE POWER	LAWN
MONTEREY SPURGE POWER	TURF
MONTEREY TURFLON ESTER	TURF
PATHFINDER II SPECIALITY HERBICIDE	DITCH BANK
PATHFINDER II SPECIALITY HERBICIDE	FARM BUILDING AREA AROUND
PATHFINDER II SPECIALITY HERBICIDE	FENCEROW
PATHFINDER II SPECIALITY HERBICIDE	FOREST
PATHFINDER II SPECIALITY HERBICIDE	INDUSTRIAL SITE
PATHFINDER II SPECIALITY HERBICIDE	NONCROP NON-AGRICULTURAL AREA
PATHFINDER II SPECIALITY HERBICIDE	PASTURE

PATHFINDER II SPECIALITY HERBICIDE	RANGELAND
PATHFINDER II SPECIALITY HERBICIDE	RIGHT-OF-WAY (RAILROAD)
PATHFINDER II SPECIALITY HERBICIDE	RIGHT-OF-WAY (ROADSIDE)
PATHFINDER II SPECIALITY HERBICIDE	RIGHT-OF-WAY (UTILITY)
RIVERDALE COOL POWER SELECTIVE HERBICIDE	GOLF COURSE
RIVERDALE COOL POWER SELECTIVE HERBICIDE	LAWN
RIVERDALE COOL POWER SELECTIVE HERBICIDE	NONCROP NON-AGRICULTURAL AREA
RIVERDALE COOL POWER SELECTIVE HERBICIDE	RECREATION AREA
RIVERDALE COOL POWER SELECTIVE HERBICIDE	RIGHT-OF-WAY (RAILROAD)
RIVERDALE COOL POWER SELECTIVE HERBICIDE	RIGHT-OF-WAY (ROADSIDE)
RIVERDALE COOL POWER SELECTIVE HERBICIDE	RIGHT-OF-WAY (UTILITY)
RIVERDALE COOL POWER SELECTIVE HERBICIDE	TURF
RIVERDALE TAHOE 4E HERBICIDE	ASPHALT/CEMENT
RIVERDALE TAHOE 4E HERBICIDE	FOREST
RIVERDALE TAHOE 4E HERBICIDE	FOREST CONIFER RELEASE/SITE PREPARATION
RIVERDALE TAHOE 4E HERBICIDE	INDUSTRIAL SITE
RIVERDALE TAHOE 4E HERBICIDE	RIGHT-OF-WAY (RAILROAD)
RIVERDALE TAHOE 4E HERBICIDE	RIGHT-OF-WAY (ROADSIDE)
RIVERDALE TAHOE 4E HERBICIDE	RIGHT-OF-WAY (UTILITY)
TURFLON D LOW VOLATILE WEED KILLER	SOD FARM
TURFLON D LOW VOLATILE WEED KILLER	TURF
TURFLON ESTER SPECIALTY HERBICIDE	GOLF COURSE
TURFLON ESTER SPECIALTY HERBICIDE	SOD FARM
TURFLON ESTER SPECIALTY HERBICIDE	TURF
VINE-X VINE & BRUSH CONTROL	NONCROP NON-AGRICULTURAL AREA

### **References:**

2003 *Farm Chemicals Handbook*, Meister Pro Information Resources

2003 *Pacific Northwest Weed Management Handbook*, Extension Services of OSU, WSU, and UI

2004 Washington State registered pesticide labels

CDMS Label Database: <http://www.cdms.net/manuf/manuf.aspwebsite>

ExToxNet Pesticide Information Profiles: <http://ace.orst.edu/info/extoxnet/pips/pips.html>

Greenbook, Chemical & Pharmaceutical Press Inc.: <http://www.greenbook.net/>

National Agricultural Statistics Service – Agricultural Chemical Use Database: <http://www.pestmanagement.info/nass/>

National Pesticide Use Database: <http://www.ncfap.org/database/default.php>

Pesticide Action Network Pesticide Database: <http://www.pesticideinfo.org/index.html>

U.S. Department of Agriculture National Agricultural Statistics Service: <http://www.usda.gov/nass/>

U.S. Department of Agriculture Pest Management Centers Crop Profiles: <http://www.pmcenters.org/cropprofiles/>

U.S. Department of Agriculture Crop Profiles: <http://pestdata.ncsu.edu/cropprofiles/>

Washington 2003 Annual Bulletin, Washington Agricultural Statistics Service ,

<http://www.nass.usda.gov/wa/annual03/content3.htm>

Washington State Pesticide Management Practices: <http://www.tricity.wsu.edu/~cdaniels/wapiap.html>

WSU PICOL Label/Crop Profile Database: <http://picol.cahe.wsu.edu/LabelTolerance.html>

WSU Pesticide Notification Network, <http://ext.wsu.edu/pnn/user/blank.php>

United States Environmental Protection Agency, Prevention, Pesticides and Toxic Substances, (7508C), EPA 738-R-98-011  
October 1998, **Reregistration Eligibility Decision (RED)** - Triclopyr

E-mail correspondence – Mark Sheldahl, October 7, 2004, Weyerhaeuser Inc. (forestry)