

FACTS ON GARLON™ RTU



For the professional utility right of way manager, Garlon RTU provides superior, selective control of trees in a convenient ready to use formulation with a favorable environmental profile.

Garlon™ RTU is a ready to use product that provides control of hard-to-kill deciduous trees and pine through basal bark and cut stump applications. It is registered to control many woody plants on pipelines, roadways, railways, electrical power lines, military bases, forestry sites, airports, industrial manufacturing and storage sites. Garlon RTU's active ingredient, Triclopyr BE ester, is non residual in the soil and degrades quickly in the environment, giving it a favorable environmental profile.

PRODUCT FEATURES

- Convenient Ready to Use formulation for basal-bark and cut-stump use
- No mixing of concentrate required
- New, novel packaging system which is easy pouring
- Effective year-round, for selective control of trees and brush
- Year-round usage allows efficiency in crew allocation and supervision
- Low environmental impact
- Ideal for low-profile, individual plant treatments
- Minimized impact on environmentally sensitive or erosion prone areas
- Service and support by the leader in industrial vegetation management

PACKAGING

Garlon RTU is filled in new packaging called the Jerri box. The Jerri box is unique packaging in that it is comprised of a box manufactured from recycled corrugated with a water resistant coating. The box has a high strength two ply plastic bag inside that is equipped with a screw cap closure. Some key feature of this new, innovative packaging is that the boxes allow for no glugging and easy pouring.

VEGETATION CONTROLLED

Garlon RTU is registered to control the following:

- alder
- ash
- aspen
- basswood
- beech
- birch
- blackberry
- buckthorn
- cherry[†]
- chokecherry[†]
- cottonwood
- dogwoods
- elderberry
- elm[†]
- hawthorn
- hickory
- hop-hornbeam
- honey locust[†]
- locust
- maples
- mulberry
- oaks[†]
- pines[†]
- poplar
- red maple[†]
- sassafras
- sumac
- sycamore
- tamarack
- wild rose
- willow
- witchhazel

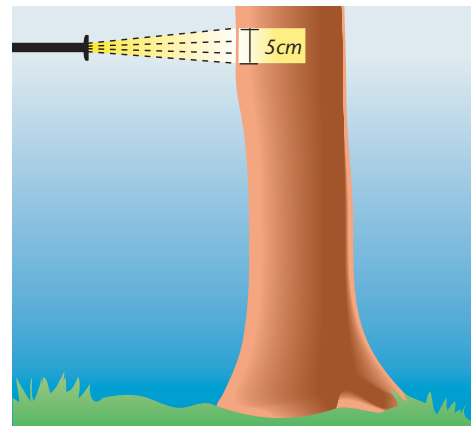
[†]These species may need to be retreated the following year.

APPLICATION METHODS

Suitable for Cut Stump and Basal Bark application methods. See 'Facts on Basal Bark Applications' for complete details on basal bark and cut stump applications.

Basal Bark Applications

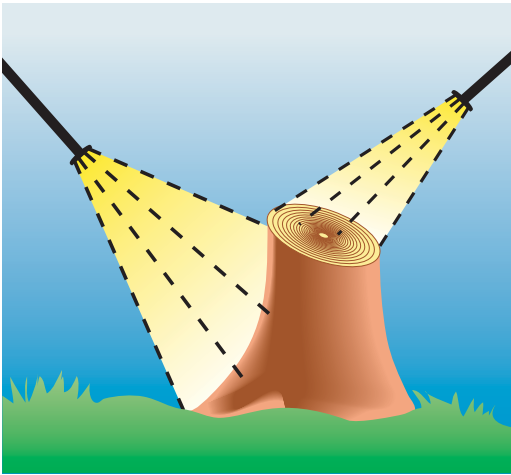
- Garlon RTU is applied to the base of individual woody plants
- Garlon RTU penetrate the cambium region of the woody stem and translocates to roots for complete control
- Effective application method year-round provided there is no moisture or frost present on the stems



For stem less than 15cm basal diameter.
Best results on stems less than 8cm basal diameter.

Cut Stump Applications

- Garlon RTU is applied on the cut surface/stump to eliminate or greatly reduce the occurrence of resprouting.
- The application of Garlon RTU on the cut surface reduces the need for repeated cutting of large diameter stumps of species that sprout from the base or sucker from roots.
- Applications may be made to both old and freshly cut stumps



MODE OF ACTION

Garlon RTU contains 144 g/L of the active ingredient Triclopyr BE ester (Triclopyr). It is a plant growth regulator that mimics growth hormones found exclusively in plants. When applied to the bark or the cut surfaces, Garlon RTU is able to penetrate the bark and cambium region easily and enters the plant's transportation system to move into the stems and roots. It then initiates rapid mature cell growth, which causes cell walls to rupture.

FATE IN SOIL

Garlon RTU active ingredient, Triclopyr binds (absorbs) to soil particles and tends to stay within 30 cm of the surface. There is little risk of triclopyr reaching groundwater, and it poses no significant environmental hazard due to leaching. In the soil, Triclopyr, undergoes degradation by soil micro organisms (fungi and bacteria) and sunlight. Final breakdown products are carbon dioxide, water and organic acids. The average half-life of triclopyr in the soil is 30 – 46 days.

FATE IN WATER

Like most herbicides, Garlon RTU is not approved for application to water surfaces and should be kept out of lakes, ponds and streams. Always maintain all provincially mandated buffer zones on water bodies.

If Garlon RTU inadvertently reaches water, it's active ingredient, Triclopyr BE ester, dissipates through a variety of environmental processes that collectively remove it very rapidly. It undergoes simple hydrolysis in water to form triclopyr acid, which breaks down through exposure to ultraviolet rays in sunlight (photolysis).

VEGETATION MANAGEMENT WITH HERBICIDES

Trees and resprouting brush create a special challenge for vegetation managers. Using a selective herbicide such as Garlon RTU provides vegetation control without harming established grasses. The directed application methods of Basal Bark and Cut Stump allows targeted application, greatly reducing the potential for injury to off-target vegetation.

Selective herbicide applications can be a safe, simple, cost effective alternative to mechanical control methods such as trimming and mowing, when vegetation managers need to control brush to ensure the reliability and safety of the services they offer or perform.

Electrical utilities must limit service interruptions; ensuring branches do not contact power lines or prevent electricity from reaching the consumer. During routine maintenance and repair, crews have to access substations, power lines, poles and towers easily and safely.

Highway vegetation management helps ensure motorist safety by controlling encroaching weeds and brush that can conceal road signs, emerging wildlife and intersecting or oncoming traffic. Without vegetation control, snow may get trapped and drift across roadways.

Railway vegetation hazards include weeds that reduce traction, hide damaged equipment during inspections, limit motorists' line of sight at crossings and cause drainage problems that lead to deteriorating ties and destabilized track beds.

Pipeline lines of sight that remain clear are important so that inspection and repair crews can spot leaks or repair problems.

Airports need to keep vegetation low to provide safe runoff areas. Long term control of vegetation and minimizing the activity near landing runways increases airport safety.

Industrial sites need vegetation management to prevent brush and weeds that can interfere with operations, create fire hazards and decrease the security provided by protective fences.

INTEGRATED PEST MANAGEMENT

Integrated pest management (IPM) focuses on the judicious, integrated use of selected, but different vegetation control techniques to achieve maximum results, at affordable costs, and with minimal environmental impact. IPM helps vegetation managers meet their efficacy, budgetary, social, environmental and safety goals.

- By establishing longer maintenance cycles, herbicide treated areas require less frequent intervention and lower costs than mechanical methods.
- Herbicides also effectively control tree roots, which eliminates undesirable vegetation and allows low-growing plants to form a barrier against invading brush, weeds and tall-growing trees.
- Mechanical methods result in higher worker injury rates; insurance coverage costs less for herbicide treatments. An article generated from Ontario Worker's Compensation data reports that injuries on manual tending programs occur 14 times more frequently than reportable injuries from herbicide tending programs.

Prescriptive treatment methods, such as the use of Garlon RTU, save companies product costs through efficient, effective applications. Research clearly shows that herbicides increase control and reduce vegetation management costs.

By leaving roots intact and viable, hand cutting and mowing results in strong plant regeneration. For every one cut stem of a poplar or birch tree, an average of 18 more stems grow back.^{2,3}

While Garlon RTU can be applied year round the selective application methods of Basal Bark and Cut stump allow applicators to treat vegetation year round even through the dormant season when there is no foliage on the trees and a foliar treatment is not an option. While, foliar applications can only be made during the growing season with Garlon Ultra, Garlon RTU allows for an extended application season through the dormant season, through the winter, and keep crews productive during these traditionally slow periods.

There are several key advantages to dormant season basal bark and cut stump applications:

- The potential of herbicide drift from the target site to non-target desirable species is significantly reduced because there is no foliage on most trees.
- There is no foliage brownout on deciduous trees rather the foliage does not bud the spring after the treatment. This allows for reduced public viability of the browned out vegetation of a foliar herbicide treatment.
- Where there is a mix of desirable and undesirable vegetation in close proximity the directed spray application technique of basal bark and cut stump allow targeted control of the undesirable woody plants with little risk of damage to adjacent desirable plant, only the treated stem and stump is controlled.

When it comes to vegetation control, research recommends herbicide applications over mechanical methods for three major reasons.

1. Mowing can cause ground damage. Heavy machinery use can also lead to slumping, rutting, soil compaction and soil erosion. Herbicides don't pose these ground hazards.
2. Mechanical methods often destroy all desirable right-of-way vegetation, prohibiting future plant diversity and opening the door to undesirable invasive plants.
3. Mechanical methods that clear vegetation can disturb or destroy nesting habitats and kill animals that come in contact with the large machines.

Researched thoroughly by Purdue University, the "Edge Effect" identifies three zones: wire zone (e.g. directly under the transmission wires), border zone and forest. The combination of low grass cover in the wire zone, shrubby border zones and tall forest alongside produces an excellent habitat for diverse species of wildlife on electrical utility rights-of-way.¹

As highlighted in research¹, the edge or border zone serves as the busiest wildlife area. It possesses more individual creatures, and has three times the animal variety of most other communities, so preventing tall forest encroachment is important.

The plant diversity that results from herbicide methods increases food and ground cover for some wildlife populations, increasing animal diversity within the right of way. Mechanical methods, by contrast, thoroughly disturb the plants, insects and animals of the area for a very long time.

GRAZING AND FORAGE TOLERANCES

Triclopyr does not bio-accumulate in body tissues. Animal metabolism studies demonstrate that triclopyr is rapidly excreted unchanged, primarily in the urine.

After treatment with Garlon RTU, areas may be grazed by livestock or harvested for forage. See label for specific details on intervals.

The following detailed data can serve as guidelines for human and environmental safety. Always read and follow label and Material Safety Data Sheet (MSDS) directions to prevent unnecessary exposure.

ORAL TOXICITY

Oral toxicity is low. Although small amounts of Garlon RTU swallowed incidental to handling are unlikely to cause injury, avoid contact with the mouth. The oral LD50 for Garlon RTU is 3200mg/kg for female rats.

CHRONIC TOXICITY TO MAMMALS

Long term testing has produced no evidence that triclopyr causes carcinogenic, mutagenic or teratogenic effects in mammals. Mammals do not metabolize Triclopyr. If ingested, Triclopyr is rapidly excreted unchanged. Animal studies have shown that triclopyr consumed in the diet will be cleared from the body within 3 days of intake, with no accumulation in the body organs.

SKIN CONTACT

A single, prolonged exposure to Garlon RTU is unlikely to be absorbed through the skin in harmful amounts. Contact with skin may cause allergic reactions in some individuals with slight skin irritation and redness. Wear personal protective equipment specified on the label. The dermal LD50 for Garlon RTU is >5000 mg/kg for male and female rats.

EYE CONTACT

When handled in a manner consistent with proper operator-use procedures as specified on the product label, it is unlikely that Garlon RTU will come in contact with eyes. If however, Garlon RTU does come in contact with eyes, it may cause temporary irritation. Flush eyes with plenty of water and seek medical attention.

TOXICITY TO AQUATIC ORGANISMS

Under proper operator-use procedures as specified on the product label, Garlon RTU poses no threat to aquatic organisms. Garlon RTU is not labelled for application to water surfaces. Triclopyr acid has a very low toxicity to aquatic organisms. When formulated as Garlon RTU, it has a higher toxicity, but in water it rapidly degrades from Triclopyr BE ester to Triclopyr acid, which is virtually non-toxic to aquatic organisms.

SUPERIOR SERVICE AND SUPPORT

Garlon RTU is a product you can use with confidence. Dow AgroSciences provides outstanding, dedicated service and support to our customers and the Industrial Vegetation Management industry. We have vegetation management experts and dedicated agronomists in the field along with a complete regulatory team to support our stewardship and training efforts. Our Emergency Response is on call 24 hours a day, 7 days a week in the unlikely event of an emergency.

¹Bramble, W.C., R.H. Yahner and W.R. Byrnes. 1992 Breeding Bird Population Changes Following Rights-of-Way Maintenance Treatments. *Journal of Aboriculture*. 18(1):23-32.

²Guggenmoos, Sig, P.Ag. 1989. Why Use Herbicides in Disturbance Line Clearance?

³Transalta Utilities, 1991, Using Herbicides to Control Brush.

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