



Town of Hillsdale Zoning Board of Appeals

Board Meeting, Tuesday, August 2, 2022 Minutes (Final)

Board Members Present: Chairman Craig Norton, Steve Smith, Jeff Sills and Barbara Barrantes & Bill Sullivan. ZBA secretary, Ramona Bellamy, recorded the Minutes.

Board Members Not Present: Robert Bradway (Alternate)

Other Attendees: Joshua Rudder Gretchen Stevens (Conservation Advisory Committee)

Chairman, Craig Norton called the public meeting to order at 7:30 p.m.

This was a continuation from last month, the applicant, Joshua Rudder of Taconic Invasive Plant Control (Applicant) was seeking a Special Permit to apply herbicide in order to eradicate an infestation of Japanese Knotweed within the 200' stream corridor on property at 142 Ten Broeck Road, Hillsdale, NY at 2846 State Route 23, Hillsdale, NY (**Tax Map #: 104.-1-41.200**) owned by Margo Potrzeba.

After our last meeting Jeff Sills contacted the Cornell Cooperative Extension Service for more information regarding application of herbicide in NYS (see attached emails & information). Applicant also contacted NYS DEC and brought information with him (see attached). Gretchen Stevens, who is on the Conservation Advisory Committee and was invited to this meeting, noted that herbicides like Glyphosate, the active ingredient in Roundup among others, are carcinogens and endocrine disruptors. Both Mr. Rudder and Ms. Stevens spoke at length about the nature of the plant, a non-native invasive species, the manner in which it spreads and the difficulty of eradication.

The Applicant will be: using Rodeo (see label information attached); will not be using surfactants, about which Ms. Stevens had concerns; will not be permitted to spray under any circumstances and will have to rely exclusively on stem injections and manual methods because of the proximity to a stream corridor. The Applicant thought that it would take no more than 3 treatments (Fall 2022, Spring 2023 & Fall 2023) with 200 treatable stems, which need to be ½ in diameter to work (40 oz. of Rodeo), and will keep us informed about the process.

Application for a Special Permit was approved by all Board Members except Steve Smith who disapproved of chemical as the only way to treat the Japanese Knotweed.

Meeting adjourned at 8:20 p.m.

Respectfully submitted, Ramona A. Bellamy, ZBA Secretary

Jingjing Yin <jy578@cornell.edu>

Fri, Jul 29, 8:49 PM (4 days ago)

to jhsills@gmail.com

Hi Jeff,

Please see the response below. I will let you know once Carrie gets back to me. Please let me know if you have any further questions.

Best,
Jingjing

Get [Outlook for Android](#)

From: Dan Wixted <djw47@cornell.edu>

Sent: Friday, July 29, 2022, 5:34 PM

To: Jingjing Yin <jy578@cornell.edu>

Cc: Carrie Jean Brown-Lima <cjb37@cornell.edu>; Michael Helms <mjh14@cornell.edu>

Subject: RE: Japanese Knotweed

Jingjing,

Carrie Brown-Lima at Cornell is probably the best person to contact for management options. I've cc'd her here. Carrie heads the New York Invasive Species Research Institute.

What I can add would be for you to make sure any product the person uses is properly registered in New York State for the use. The site and pest combination must be on the label for the product to be legally used. Invasive species are often not listed on labels, but in some cases you can find a product that has a DEC-approved 2(ee) label that allows use for a specific unlabeled pest. In such cases, you must have both the product label and the 2(ee) label with you when making an application. You can find product labels at www.dec.ny.gov/nyspad/products. I've attached an example. NOTE: This is NOT a recommendation of the product; I haven't looked over the label to see if it can be used for the person's purpose, and I'm merely providing an example of a product/2(ee) label combination so you can see what I'm talking about.

Also note that labels might require setbacks from surface waters or prohibit use where contamination of surface water is likely.

I've also cc'd Mike Helms with my program. I'll be out of the office the first 2 weeks of August, so Mike would be a better person to contact if you have questions about product labels or using NYSPAD.

--Dan

Dan Wixted
Extension Support Specialist

Cornell Cooperative Extension
Pesticide Safety Education Program

135 CALS Surge Facility
525 Tower Road
Ithaca, NY 14850
psep.cce.cornell.edu
djw47@cornell.edu
607-255-7525

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From: Jingjing Yin <jy578@cornell.edu>
Sent: Friday, July 29, 2022 5:08 PM
To: Dan Wixted <djw47@cornell.edu>
Subject: Fwd: Japanese Knotweed

Hi Dan,

My name is Jingjing Yin. I work with CCE Capital Area Agriculture and Horticulture Program. A resident of Columbia County reached out to me regarding the use of glyphosate for controlling Japanese Knotweed on a streambank. He was wondering if it is effective and advisable? Are there any environmental concerns? Are there any other effective methods of control? Any thought and advice would be really appreciated!
Thank you! Have a good weekend!

Best,
Jingjing

Jingjing Yin <jy578@cornell.edu>

Mon, Aug 1, 3:23 PM (17 hours ago)

to jhsills@gmail.com

Hi Jeff,

Please see more information on controlling Japanese Knotweed below. Please let me or Sam know if you have any further questions.

Best,
Jingjing

From: Samantha Schultz <ss986@cornell.edu>

Sent: Monday, August 1, 2022 3:16 PM

To: Jingjing Yin <jy578@cornell.edu>

Cc: Dan Wixted <djw47@cornell.edu>; Michael Helms <mjh14@cornell.edu>

Subject: RE: Japanese Knotweed

Hello Jingjing,

My name is Sam Schultz, I am the Terrestrial Invasive Species Coordinator for the Capital Region PRISM. This email chain has been forwarded to me. Please see a best management guide for Japanese Knotweed [here](#) with multiple different options for management and the attached Landowner's Guide to Knotweed Control. Our partners have seen great success with the stem injection method but Japanese Knotweed is a very aggressive species so it will likely take multiple applications and follow-up monitoring, so be patient with it. Applications should occur following flowering for the best results.

The Landowner's Guide goes over some of the biggest environmental considerations with herbicide application. If the herbicide application is applied by following the label, there should be a lower risk for environmental damage.

As far as the application of glyphosate for control of Japanese Knotweed near a streambank, I would recommend contacting the DEC Pesticide Compliance Section at 518-402-8727 or PesticideCompliance@dec.ny.gov to ensure you are not applying within a regulated wetland or area that requires a permit for pesticide application.

If the landowner doesn't feel comfortable applying herbicide after reading through the materials and contacting the DEC Pesticide Compliance Section, there are certified applicators who can perform the work. Please have them reach out to me if they decide to hire an applicator and I may be able to offer some suggestions of companies.

Best,

Sam Schultz

Terrestrial Invasive Species Coordinator
Capital Region PRISM
Partnership for Regional Invasive Species Management

Cornell Cooperative Extension | Saratoga County

50 West High St. Ballston Spa, NY 12020

| www.capitalregionprism.org | ccesaratoga.org | ss986@cornell.edu | p 518-885-8995

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Please note that neither Cornell Cooperative Extension of County nor any representative thereof makes any representation of any warranty, express or implied, of any particular result or application of the information provided by us or regarding any product. If a product is involved it is the sole responsibility of the User to read and follow all product labeling instructions and to check with the manufacturer or supplier for the most recent information. Nothing contained in this information should be interpreted as an express or implied endorsement of any particular product or criticism of unnamed products.

With respect to any information on pest management the User is responsible for obtaining the most up-to-date pest management information. The information we provide is no substitute for pesticide labeling. The User is solely responsible for reading and following manufacturer's labeling and instructions.

From: Carrie Jean Brown-Lima <cjb37@cornell.edu>

Sent: Monday, August 1, 2022 10:28 AM

To: Dan Wixted <djw47@cornell.edu>; Jingjing Yin <jy578@cornell.edu>

Cc: Michael Helms <mjh14@cornell.edu>; Kristopher Williams <kbw44@cornell.edu>

Subject: RE: Japanese Knotweed

Hi Jingjing,

Thanks for reaching out.

I am connecting you with Kristopher Williams from the Capital region Partnership for Regional Invasive Species Management as I believe he could provide the best advice to you regarding your inquiry.

All the best,

Carrie

From: Dan Wixted <djw47@cornell.edu>

Sent: Friday, July 29, 2022 5:34 PM

To: Jingjing Yin <jy578@cornell.edu>

Cc: Carrie Jean Brown-Lima <cjb37@cornell.edu>; Michael Helms <mjh14@cornell.edu>

Subject: RE: Japanese Knotweed

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Thank you! Have a good weekend!

Best,
Jingjing

From: Jeff Sills <jhsills@gmail.com>
Sent: Friday, July 29, 2022, 9:54 AM
To: Jingjing Yin <jy578@cornell.edu>
Subject: Japanese Knotweed

Hi Jingjing,

I am a farmer in Hillsdale NY and a member of the ZBA. We have an applicant who wants a permit to use herbicide within a stream corridor.
I have a few questions about treating Japanese Knotweed on a streambank with glyphosate
Is it effective and is it advisable ?
Are there environmental concerns?
Are there other effective methods of control?

Thank you,
Jeff Sills
413-441-9679

Attachments area

A LANDOWNERS GUIDE TO INVASIVE KNOTWEED CONTROL



Adirondack Park Invasive Plant Program

8 Nature Way
Keene Valley, NY 12943

Updated June 2018



INTRODUCTION

Thank you for participating in APIPP's Invasive Knotweed Control Program. Your efforts will help protect the Adirondacks from the negative impacts of invasive species. This document will serve as a reference to guide the effective and environmentally conscious control of invasive knotweed species on your own property. Within this guide you will find information on the biology of knotweed, its impacts, and detailed instructions on how to implement best management practices.

Included within this knotweed injection toolbox you will find:

- Injectordos tool
- Paint pens
- Measuring cup
- Funnel
- Pair of chemical resistant gloves
- Treatment data sheet

The knotweed injection toolbox does *not* include herbicide. Please refer to Appendix A for more information about purchasing herbicide.

Before starting your knotweed control project, please take the time to review this manual. If you have questions regarding its content, please contact APIPP's Terrestrial Invasive Species Project Coordinator (contact information provided below).

This kit is provided free of charge, but we kindly request that you complete the attached data sheet to document your management activities. Reporting this information will help increase our understanding of the distribution of knotweed across the landscape and provide valuable information to inform adaptive management efforts. Failure to report management activities may bar future participation in the program.

Before treating your knotweed stand, please record its location using a GPS, the iMapInvasives app, or APIPP's online reporting tool at www.adkinvasives.com.

Contact:

Becca Bernacki
Terrestrial Invasive Species Project Coordinator
Adirondack Park Invasive Plant Program
(518) 576-7262 Ext. 130 rebecca.bernacki@tnc.org



Table of Contents

Introduction	i
Knotweed Biology and Identification	1
Potential Threats and Impacts.....	3
Strategies for Knotweed Removal.....	4
Mechanical Control.....	4
Chemical Control	5
Herbicide Selection	5
Herbicide Timing	5
Herbicide Application Techniques.....	6
Regulations and Permitting Requirements.....	6
Environmental Considerations	7
Personal protective equipment.....	7
Herbicide Application Instructions	8
Stem Injection.....	8
Injector Calibration	8
Injection Instructions	9
Preparing a Foliar Spray Solution	11
Foliar Spray	11
Foliar Spray Instructions	12
Cleanup.....	14
Injector Tool Cleanup.....	14
Sprayer Cleanup.....	15
Appendix A: Herbicide Selection	16
Appendix B: Injection Tool Schematic.....	17

KNOTWEED BIOLOGY AND IDENTIFICATION

What is invasive knotweed?

Knotweed is an annual, herbaceous perennial shrub native to Japan, China and Korea. There are four knotweed species present in the region, including Japanese, giant, Bohemian, and Himalayan. All are fast growing and can easily exceed 12 feet in height. The most commonly recognized variety is Japanese knotweed (*Reynoutria japonica*), described below:



Leaves:

Leaves are simple, alternate, and heart shaped with a blunt base and finely pointed tip. The upper surface is dark green, with a lighter green underside. They can vary significantly in size depending on the height of the plant, often exceeding 12 inches in length.

Canes/Stem:

Stems are upright, rigid, hollow, and round. They are divided by concentric rings (nodes) where branches meet the main stem. The cane is light green and is often mottled with reddish-purple blotches. Some canes are covered with a fine white coating that is easily rubbed off. Canes brown and remain standing when dead.



Flowers:

Flowers are small, numerous, and creamy white. They are arranged in clusters at the terminal ends of branches. In New York, blooms typically occur in late-August through September.

Branches:

The secondary branches of Japanese knotweed have a distinct zig-zag pattern when viewed from above or below.



Roots/Rhizomes:

Roots are extensive and develop quickly, accounting for up to 2/3 of total plant biomass. Rhizomes may extend 40+ feet laterally from visible stems. They are brown with a bright orange interior. Segments as small as 1cm are capable for forming new infestations.

OTHER KNOTWEED SPECIES

Giant knotweed (*Reynoutria sachalinensis*)

Some key identification characteristics of this species include:

- Average maximum growth height of 19 feet
- Thicker, less mottled stems than Japanese or Bohemian knotweed
- Mid-stem leaves are often greater than 12 inches long and 2/3 as wide
- Leaf base is deeply heart-shaped
- Leaf tip is blunt or acute point



Bohemian knotweed (*Reynoutria x bohemicum*)

This species is a hybrid between giant and Japanese knotweed. It shares many characteristics of both parent species. Some key identification characteristics include:

- Average maximum growth height of 16 feet
- The leaf base is typically more heart shaped than Japanese knotweed
- Hairs on the leaf undersides are short and broad, compared with long and wavy on giant knotweed.
- Leaves are 2-12 inches long and $\frac{2}{3}$ as wide
- Leaf tip intermittent between Japanese and giant knotweed



Himalayan knotweed (*Polygonum polystachyum*)

Some key identification characteristics of this species include:

- Average maximum growth height around 6-9 feet
- Leaves are oblong or lance shaped, 4-8 inches long and half as wide



POTENTIAL THREATS AND IMPACTS

The threats and impacts associated with knotweed invasions can be significant. The type and degree of impact is influenced by a variety of factors such as habitat type, infestation size and density, and site conditions. Cumulative impacts are likely to be greater for large, well established stands.

Quickly identifying and treating new knotweed infestations is critical to prevent negative impacts and increase opportunities for management success.

ECOLOGICAL IMPACTS:

Knotweed species can invade a variety of habitat types including forest edges, roadsides, yards, and riparian corridors. When established in riparian areas, knotweed can be easily dispersed via fragmentation of its roots and aboveground plant material. Large monotypic infestations of knotweed can decrease biodiversity of native plants, decrease the value of habitat for wildlife, and increase streamside soil erosion due to the absence of a groundcover vegetation.



SOCIETAL IMPACTS:

When growing along riparian corridors, dense stands of knotweed can impede recreational access for boaters and anglers.

In developed areas, knotweed growing along roadways can block signage or impede line-of-sight at intersections – creating a safety hazard for motorists.

ECONOMIC IMPACTS:

Knotweed's aggressive rhizome system can directly damage infrastructure such as roads, sidewalks, and building foundations. Roots can grow through concrete or asphalt over three inches thick – necessitating costly repairs.

The direct costs associated with controlling well established stands of knotweed can be high. Most infestations will require at least five years of treatment.



STRATEGIES FOR KNOTWEED REMOVAL

GENERAL MANAGEMENT GUIDELINES

- Do not mow knotweed. It can easily spread by stem plant fragments.
- Follow principles of Integrated Plant Management (IPM); evaluate all available control strategies.
- Document and record treatment information; adapt management techniques, if necessary
- Treatment is never a “one and done.” Always plan for a multi-year control effort
- Never compost knotweed material (see solarization section below).

Mechanical Control

Very-small to small sized infestations can be managed by digging or pulling. This management technique is limited to true early-detection sized infestations that contain only a handful of stems.

1. Using a digging tool, carefully remove the entire plant and its root system.
2. Small plants may be hand pulled depending on soil conditions and the stage of root development.
3. Remove excess soil from the root ball, taking care to not break apart the rhizome system.
4. Inspect the area where the knotweed was removed for any residual rhizome or root material; remove if detected.
5. Place all plant material in a black plastic bag and solarize for at least two weeks before disposal in a landfill.



SOLARIZE, DON'T COMPOST

Knotweed plant material that is cut or excavated during management must be properly contained and disposed of to prevent unintentional spread to new locations.

1. Place all plant material in a 3mm+ black garbage bag
2. Place closed bags in full sun and allow them to decompose for *at least two weeks*
3. Check the plant material inside. If it's liquified and decomposed, it can be disposed of in the waste stream.

Chemical Control

Moderate to large infestations of knotweed are most effectively controlled using systemic herbicides. Herbicide selection, timing, and application technique are all important variables that will determine the efficacy of treatments. Before initiating chemical control, please review the following background information.

HERBICIDE SELECTION

A variety of herbicide products are available and labeled for control of knotweed species. The best product for your treatment will vary based on site conditions and your management objectives. APIPP recommends two potential herbicide active ingredients for knotweed control:

Glyphosate

- Applied as a foliar spray or stem injection
- Breaks down quickly in the environment, with little to no residual effect
- Readily available for purchase by non-certified applicators
- Common trade names include: RoundUp, Accord XRT-II

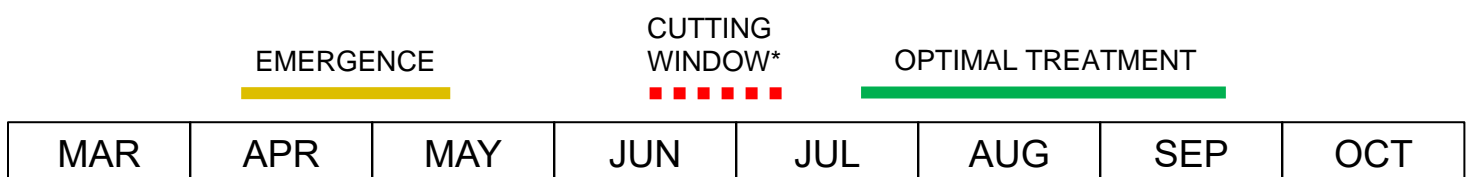
Imazapyr

- Applied as a foliar spray
- Has a long residual effect in the soil, providing extended control
- Relatively few products are available for non-certified applicators
- Common trade names include: Arsenal, Arsenal Powerline

See Appendix A for a list of herbicides that are effective against knotweed. When purchasing herbicide, consider the total quantity of knotweed to be treated. If your infestation is small, purchase the smallest quantity of herbicide possible.

HERBICIDE TIMING

The herbicides used to control knotweed are systemic, meaning they are absorbed by the plant and transported throughout its circulatory system. Ideally, herbicide applications should be performed late in the growing season while plants are flowering. At this time, knotweed is actively moving nutrients into its root system to prepare for winter dormancy. Systemic products will also be carried into the root system, providing effective control. All treatments should be completed two-weeks before the first anticipated frost. The figure below provides an overview of knotweeds life cycle and indicates the optimal times for management.



* Cutting for follow up foliar spray during optimal treatment window

HERBICIDE APPLICATION TECHNIQUES

Stem Injection

The stem injection technique utilizes a specialized tool to deliver a small dose of concentrated herbicide (100%) directly inside the hollow knotweed stem. It is very effective and significantly decreases the potential for off-target impacts but is time and resource intensive. It is most effective on larger stems and is the best option for chemical control at sensitive sites. A draw-off style injection tool is included with this kit.



Foliar Spray

The foliar spray technique utilizes a hand-held or backpack sprayer to deliver a diluted solution of herbicide to knotweed's foliage. It is useful for covering large and dense infestations, or for plants too small to inject. While it is quick and efficient, this method presents a higher potential for off-target impacts via herbicide spray drift. Foliar spray treatments should be performed under favorable environmental conditions (i.e. low wind).



REGULATIONS AND PERMITTING REQUIREMENTS

Before beginning herbicide treatment, consider the following regulations and permitting requirements to ensure your management efforts are not in violation of local, state or federal laws/regulations. **Please note:** this is not an exhaustive list. It is the sole responsibility of the landowner to ensure compliance with all applicable laws regulations.

1) THE LABEL IS THE LAW!

All herbicide applications must be performed in strict accordance with the herbicide manufacturers product label. This includes wearing appropriate personal protective equipment, using approved dosage rates, and only applying to locations listed on the label. Using an herbicide in any manner inconsistent with its label is a violation of federal law.

2) DO NOT USE HERBICIDES NEAR WATER

Non-certified applicators (i.e. landowners) are not permitted to apply herbicide within 100-feet of surface water or wetlands. Aquatic applications require special herbicides and state permitting. If you think your treatment site is located near a wetland, please contact APIPP for guidance.

3) KNOW YOUR BOUNDARIES

Non-certified applicators may apply general use herbicides on their *own* properties. Treatments performed on land not owned by the applicator are considered commercial and require certification – even if no compensation is provided for the treatment. In other words, you cannot treat your neighbors land, the Forest Preserve, right-of-way areas, etc.

ENVIRONMENTAL CONSIDERATIONS

When applied in accordance with label recommendations, herbicides present little risk for environmental impact. The guidance below will help ensure your treatment does not impact non-target organisms or resources:

BEES AND POLLINATORS - Time applications when pollinators are least active. Evening applications are better than early morning, and both are better than midday.

WIND- Avoid foliar spray treatments during periods of moderate or high wind to minimize off-target drift.

RAIN - Do not treat plants when rain is in the near-term forecast.

SUN AND HEAT - Avoid foliar spray treatments when temperatures exceed 80°F. Herbicides will evaporate faster than they can be absorbed by the plant.

DEW - Do not treat plants when dew is present. The herbicide will become diluted or runoff.

WATER SOURCES - Do not use herbicide near surface water, wetlands, or drinking water wells.

CONTAMINATION - To prevent environmental contamination, never use more product than what is recommended by the label. Always dispose of excess product properly.

BE PATIENT!



Systematic herbicides require time to take effect. Plants may not show visible signs of decline for 2-3 weeks after treatment. Do not cut, remove, or disturb plants until they are brown and dry. Additional applications will not increase effectiveness and may lead to environmental contamination.

PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) must always be worn when handling or applying herbicide. Consult the herbicide product label for a list of required PPE. At a minimum, most manufactures recommend long-pants, long-sleeves, shoes with socks, and chemical resistant gloves. Protective eyewear is always a good precaution. Be sure all PPE is clean and in good working order.

Personal Protective Equipment (PPE)

Some of the materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material such as natural rubber
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exists, use detergent and hot water. Keep and wash PPE separately from other laundry.

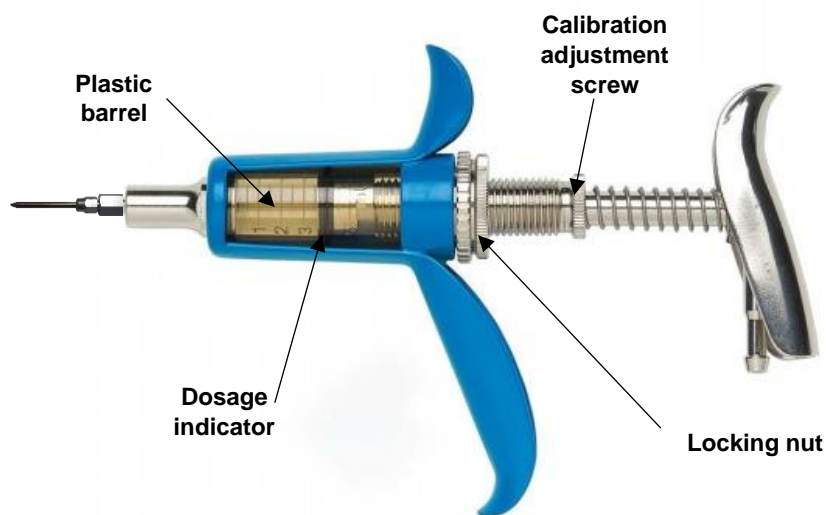
HERBICIDE APPLICATION INSTRUCTIONS

The following section provides step by step instructions to guide your chemical control work. While these general best management practices are known to be effective on knotweed, always consult the herbicide label to ensure the rates and techniques described below are permitted.

Stem Injection

INJECTOR CALIBRATION

Before beginning application, it's important to calibrate the injection tool to ensure it is delivering an optimal dose of herbicide within the herbicide manufactures recommendations. Always wear personal protective equipment when handling herbicide application equipment. Follow the steps below to calibrate the injection tool:



The injection tool can be easily calibrated without tools. First, check the current dosage setting by viewing the plastic barrel. The black ring within the plastic barrel indicates the dosage. The barrel is marked with ml increments. The tool is provided pre-calibrated to a 3ml dosage. It is recommended that you do not change this setting. However, if you need to increase or decrease the dosage:

1. Loosen the locking nut
- 2a. To *increase* dosage, loosen the adjustment screw. The black dosage indicator will move to the *rear* of the unit.
- 2b. To *decrease* dosage, tighten the adjustment screw. The black dosage indication will move to the *front* of the unit.
3. Once the dosage indicator is in the appropriate position, hand tighten the locking nut.

INJECTION INSTRUCTIONS

For maximum treatment efficacy, all knotweed stems large enough to receive the injection needle should be treated. Smaller stems should be treated with a foliar spray of herbicide (see page 11). Generally, stems must be approximately the diameter of a penny to be injected. If a stem is too small, it will break and leak herbicide product. Follow the steps below to complete your injection treatment;

1. Assess your knotweed stand and determine the best starting point. Using a systematic approach, such as working front-to-back or left-to-right can help ensure all stems are treated. Injecting and marking each stem on the same side will make it easier to track your progress.
2. Assemble the tool by attaching the hose to the injector plunger (see schematic – page 17).



3. Fill the herbicide reservoir with the appropriate product (glyphosate), making sure not to exceed the max fill line. Most stem injections require undiluted product, but always consult your herbicide product label before treatment. Fill the injection tool reservoir over a catch basin or impermeable surface to ensure spills can easily be contained. Have paper towels and/or an absorbent material ready as a precaution. Securely fasten the reservoir to the hose. **Note:** Remember to track the total quantity of herbicide used for reporting and to ensure you do not exceed label recommendations.

4. Holding the injection tool with the reservoir upright, align the needle between the second and third node (or another location specified by the product label). See Photo 1 – nodes are identified in red.



5. Holding the injection tool with your hand off the plunger, carefully insert the needle into the stem. You may need to support the stem with another hand to prevent it from bending or breaking. Slowly and fully squeeze the plunger one-time to dispense herbicide into the stem (Photo 2). The plunger should feel firm while being depressed, indicating liquid is moving through the system. Use the clear window to verify herbicide is leaving the tool.



6. Once the injection is complete, remove the tool from the stem and mark the cane using the provided paint marker (Photo 3). Be sure to mark *above* the injection site to prevent contaminating the marker with herbicide residue. Remember, marking all stems on the same side will make it easier to track your progress.
7. Repeat steps 4-6 for all stems in the infestation that are large enough to accept the injection needle. Be sure to track the total quantity of herbicide solution used.
8. Once injections are complete, carefully return unused herbicide from the injection tool to the original manufacturer's container. A funnel is provided in the toolbox to minimize the potential for spills. Pour over a catch basin or impermeable surface to ensure spills can easily be contained. If your treatment is complete, proceed to the cleanup instructions on page 15. If you plan to perform a follow-up foliar spray for smaller plants, proceed to the section below. To aid the cleanup process, the injection tool can be triple-rinsed into your spray apparatus by following the protocol described on page 15, step 2.

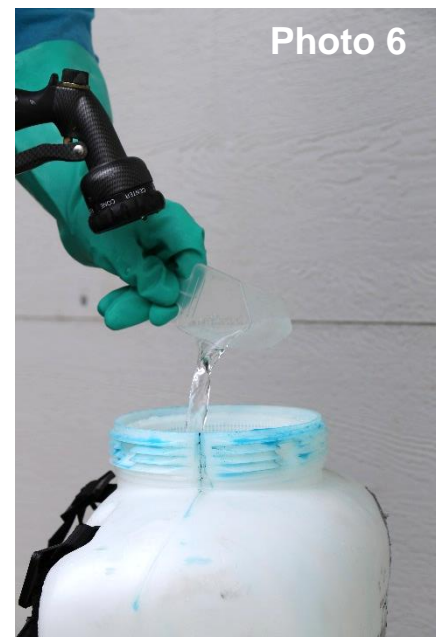
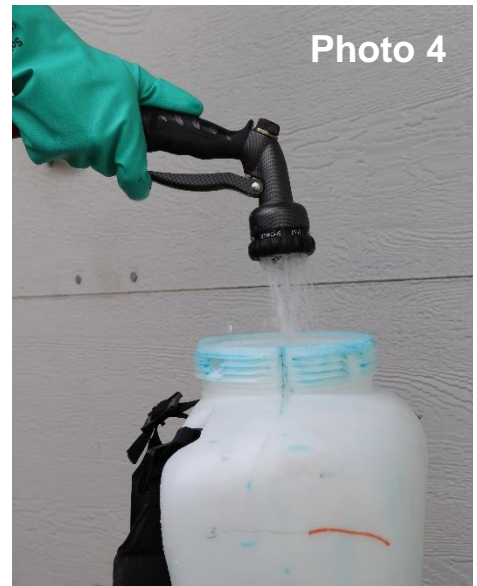


Foliar Spray

PREPARING A FOLIAR SPRAY SOLUTION

Consult your herbicide label to determine the appropriate dilution rate for a spray-to-wet treatment of knotweed. The labeled rate is usually in a range from 2-5%. When preparing a solution for foliar spray, mix the lowest volume of solution possible. Avoid storing excess product in a diluted state. It is better to mix a small batch and need to refill, than mix a large batch and have an abundance of leftover spray mix.

1. Determine the total quantity of solution to be mixed and the appropriate amount of herbicide needed.
2. Fill your sprayer to ½ of the desired volume with water (Photo 4).
3. Carefully measure herbicide using the measuring cup provided. If your herbicide container is squeeze and fill design, you do not need to use the measuring cup. Pour to measured herbicide into the backpack (Photo 5).
4. Using caution not to splatter, carefully rinse the measuring container, dumping the rinse water into your sprayer. Repeat for a total of three-rinses (Photo 6).
5. If you are using a marker dye, add the appropriate amount to your spray solution. If needed, triple rinse the measuring vessel as described above.
6. Continue filling the sprayer with water until it reaches the desired volume.
7. Secure the sprayer lid and gently agitate your solution. You are now ready to begin application.



FOLIAR SPRAY INSTRUCTIONS

If you have already performed a stem injection treatment on your knotweed stand, foliar spray should only be used as a “clean-up” to treat any stems that were too small to inject.

The foliar spray technique can also be used as a standalone management strategy for large/dense stands. When foliar spray is used as the primary management action, it can be helpful to cut down your knotweed during mid-summer (see treatment timing page 5) and allow the canes to regrow for 4-6 weeks before treatment. This will minimize the need to spray overhead and allow for a more selective treatment.

1. Assess your knotweed stand and determine the most appropriate starting point. Using a systematic approach, such as working front-to-back or left-to-right, can help ensure all stems are treated. Treat your stand as if you were painting a floor; avoid walking through areas that have already been sprayed to limit your exposure to herbicide.
2. Pressurize your backpack or handheld sprayer by repeatedly depressing its priming lever until the stroke is firm.
3. Aim your sprayer wand or nozzle at the knotweed to be treated and briefly depress the level to test the spray pattern (Photo 7). A very fine spray pattern will limit the amount of herbicide being applied but will increase the potential for herbicide drift. Large droplets will deliver a large quantity of herbicide and can lead to over application. A middle-balance is ideal.
4. If needed, adjust your sprayer wand or nozzle to achieve the desired spray pattern. Tightening the nozzle will produce a finer droplet, while loosening the nozzle will produce larger droplets (Photo 8).
5. Spray the foliage of all untreated knotweed plants. At least 70% of the leaf surface area should be treated. Spray plants until wet, but not until the point of runoff (Photo 9).
6. If possible, use all the solution in your sprayer without over applying. If you have finished treating your knotweed but have a small amount of solution remaining, it can be used to treat other undesirable



plants around your property. Be sure you do not treat near water or treat a species not included on the products label.



7. Once you have completed treating your knotweed, proceed to page 15 for cleanup instructions.



CLEANUP

To avoid drying and hardening of pesticide residues - and potential corrosion and damage to equipment - clean all application equipment immediately following the treatment. Be sure to clean the entire injection system, not just the herbicide reservoir. Follow the steps below:

Injector Tool Cleanup

1. Be sure all herbicide product has been removed from the injector tool's reservoir. Insert the needle of the injection tool into the herbicide container and depress the plunger multiple times to remove any residual product from the internal components of the system (Photo 10).
2. Working over a catch basin or impermeable surface to contain spills, carefully fill the herbicide reservoir 1/3 full of clean water (Photo 11).

Replace the lid. Aim the injection tool into a rinsate collection container or herbicide sprayer and depress the trigger until the reservoir has been emptied.

Note: If you are performing a foliar spray following injection, water from the rinsate collection container can be used as part of your solution. Otherwise, dispose of rinse water in accordance with the herbicide manufacturer's recommendations.

3. Repeat steps 2-3 for a total of three rinses. Wipe the tool dry with a paper-towel or disposable cloth. It can now be placed back in the toolbox.
4. Remove the needle and place it in the storage tube to prevent physical injury.
5. Rinse or soak the herbicide reservoir cap with water to clean out its check valve.



Sprayer Cleanup

1. Spray out all herbicide solution from your tank. Ideally, all solution should be used to treat knotweed, but excess product may also be used to manage nuisance vegetation around your property. Do not treat near water or spray a species not listed on the product label.
2. Fill the backpack sprayer approximately $\frac{1}{2}$ full of water. Secure the sprayers lid and agitate.
3. Spray out the rinse water on an impermeable surface (level, not near water sources) where it can evaporate or another place without plant life, since the water will have chemical residue.
4. Repeat steps 2-3 for a total of three rinses.
5. Wipe down your sprayer with dry with a paper-towel or disposable cloth. It can now be stored for later use.

SHARE YOUR SUCCESS!



Before



After

Persistent management efforts can yield impressive results. Please share your experience and success stories with APIPP's Terrestrial Project Coordinator.

APPENDIX A: HERBICIDE SELECTION

Several factors should be considered when selecting an herbicide for knotweed control such as the size of the infestation, proximity to sensitive features (desirable plants, eater, etc.) and the ultimate management objective. Avoid purchasing excess herbicide to reduce the need for long-term storage. However, recognize that chemical control is never a “one-and-done” project. Multiple treatments will be required over consecutive years, so a small amount of excess herbicide is appropriate.

Use the table below to select an herbicide for your control project. Glyphosate based products should include at least 40% active ingredient to be effective against knotweed. Check the product label to ensure knotweed is a listed target species and that injection is an approved application method.

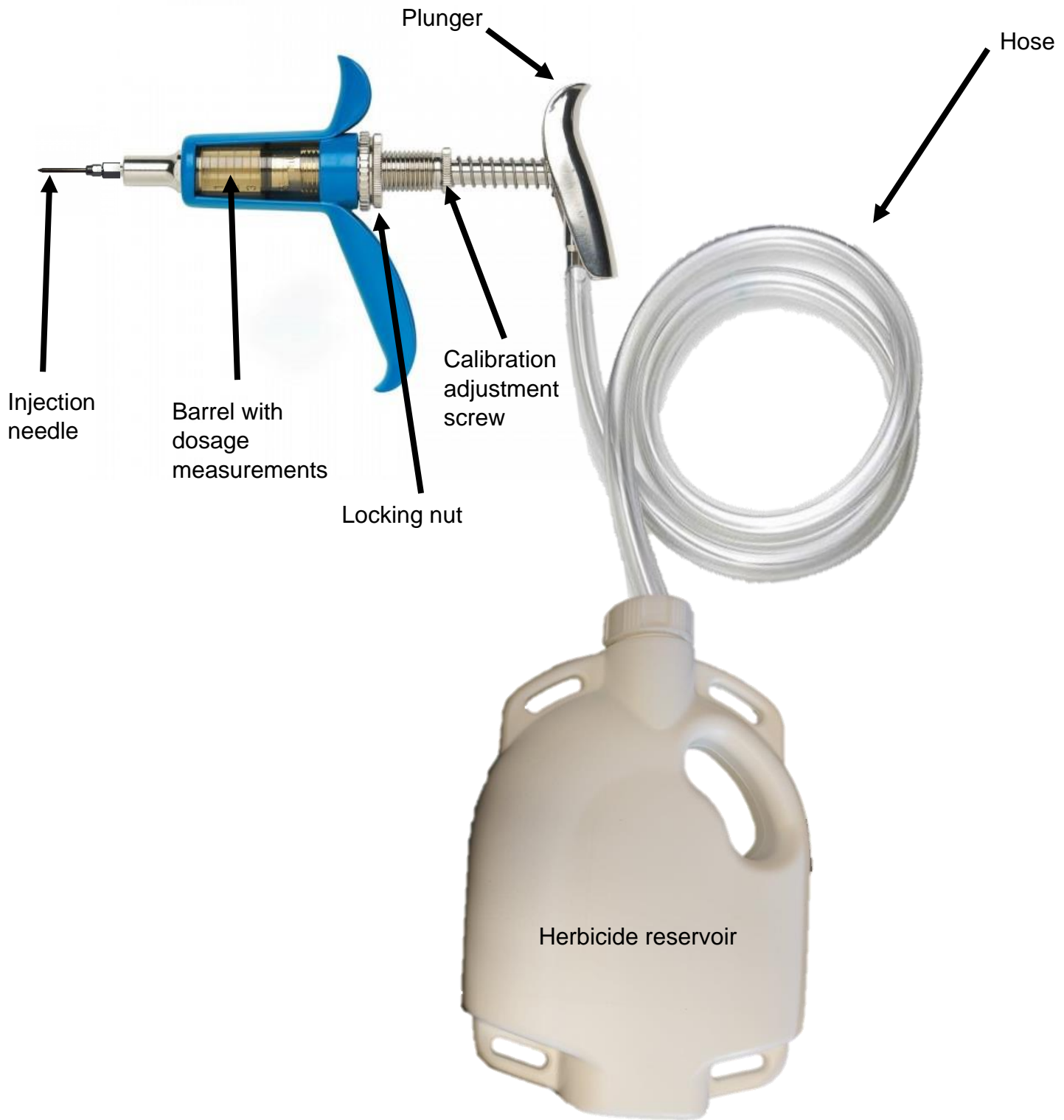
The inclusion of herbicide products and retailers in this list does not constitute endorsement but is simply provided as a reference to aid landowners in selecting an effective product. For more information, contact APIPPs Terrestrial Project Coordinator.

	Product Trade Name
Glyphosate Based	Accord XRT-II
	Pronto Big N' Tuf
	RoundUp ProMax
	Compare N Save Grass and Weed Killer
	RoundUp Weed and Grass Killer Super Concentrate
	GroundWork Super Weed & Grass Killer
	FarmWorks 41%Glyphosate Plus
	RoundUp PowerMax
Imazapyr Based	Arsenal
	Arsenal Powerline

Online Herbicide Retailers:

- www.forestrysuppliers.com
- www.gemplers.com
- www.arborchem.com

APPENDIX B: INJECTION TOOL SCHEMATIC



New York State Department of Environmental Conservation

Regional Division of Materials Management, Region 4

Bureau of Pest Management

1130 North Westcott Rd., Schenectady, NY 12306

Phone: (518) 357-2045 • Fax: (518) 357-2398



Department of
Environmental
Conservation

Website: www.dec.ny.gov

August 2, 2022

Joshua Rudder
Taconic Invasive Plant Control LLC
417 Rigor Hill Road
Ghent, NY 12075

Dear Joshua Rudder,

Thank you for contacting the Department of Environmental Conservation (DEC) Bureau of Pesticides Management (BPM) in regard to the proposed treatment at 142 Ten Broeck Road, Hillsdale, NY 12529. According to the proposal you provided, a glyphosate herbicide product is proposed to be injected directly into the stems of the invasive plant, Japanese Knotweed lining the bank of Agawamuck Creek. After reviewing the proposed treatment area, it has been determined that the Japanese Knotweed is not located in standing water but on dry land of the creek bank. The Environmental Conservation Law (ECL) Article 15 states that an Aquatic Pesticide Permit is required for the direct application of an aquatic pesticide to surface waters of the State of an acre or more in size. Therefore, as long as the targeted plants are not in standing water at the time of treatment, an Article 15 Aquatic Pesticide Permit is not required from the BPM. More information regarding Article 15 Aquatic Pesticide Permits can be found on the DEC website at <https://www.dec.ny.gov/chemical/8530.html>.

I also reviewed the location of the proposed project using the DEC's Environmental Resource Mapper (ERM) which can be found at <https://gisservices.dec.ny.gov/gis/erm/>. This tool helps identify any regulated wetlands as well as any threatened or endangered species in a specified area. According to the ERM, there were no wetlands or threatened or endangered species identified in the proposed treatment area (see Attachment A). Therefore, additional permitting from the DEC is not needed from the Division of Environmental Permits (DEP). However, you are more than welcome to reach out to DEP directly with any questions. They can be contacted at 518-357-2069.

At this time, the requirements from the DEC that need to be followed pertain to Commercial Pesticide Certification and Business Registration through the BPM. According to our New York State Pesticide Applicator Database (NYSPAD), you, Joshua Rudder, are a Certified Commercial Pesticide Applicator whose certification is current and valid (see Attachment B). The application of herbicides to plants that are not in standing water requires certification in Category 3A, Ornamental and Turf, which Joshua Rudder holds. Applying herbicides in a for-hire capacity also requires Business Registration. According to NYSPAD, Taconic Invasive Plant Control, LLC is a currently registered business with the DEC (see Attachment C).

If there are any further questions or concerns, please feel free to reach out to the BPM at 518-357-2045 or DEP at 518-357-2069.



Sincerely,

Sarah Whelen
Pesticide Control Specialist
NYS DEC Region 4

Attachment A



[Services](#) [News](#) [Government](#) [COVID-19](#)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Environmental Resource Mapper

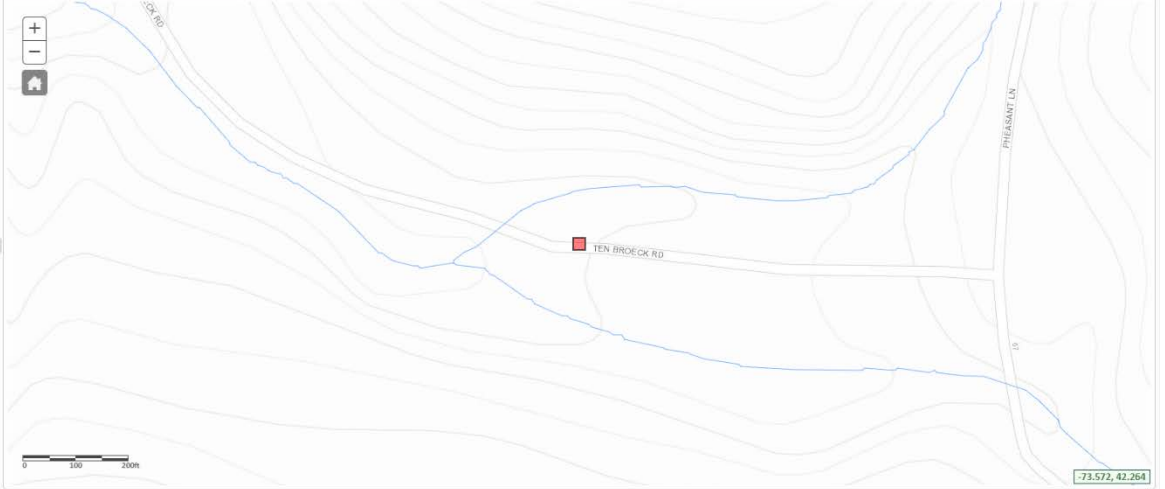
Base Map: [Topographical](#) [Using this map](#)

Search

Tools

Layers and Legend

- State Regulated Freshwater Wetlands (Outside of the Adirondack Park)
- State Regulated Wetland Checkzone
- Imperiled Mussels
 - Mussel Screening Ponded Waters
 - Mussel Screening Streams
- Significant Natural Communities
 - Natural Communities Near This Location
- Rare Plants or Animals
- Base Flood Elevation Plus 72/75 Inches Sea-level Rise
 - Limit to Moderate Wave Action
- Other Wetland Layers
- Reference Layers
- Tell Me More...
- Need A Permit?
- Contacts



[Agencies](#)
[Services](#)

[App Directory](#)

[Counties](#)

[Events](#)

[Programs](#)

Attachment B

Residues Professional

RUDDER, JOSHUA M

DMV ID XXX XXX 939
 DOB 07/31/1973
 Region 4
 Public ID 1277327

Created On 11/15/2017 2:29 PM
 Updated On 11/15/2017 2:29 PM
 Updated By nibrando

[Edit](#)

Felonies

No felonies on file

Red Flags

No red flags

PRL Violations (Unresolved)

No unresolved PRL violations

Supporting Information

Courses/Credits Exams Experience Felony Review Documents

Category: Date Earned: Credits Remaining:
 Display All < 5 Years > 0.00 [Search](#)

Showing 1 to 4 of 4

Cert ID	Course	Category	Date Earned	Credits	Cr. Used	Credits Remaining	Use Note	Actions
C4897095	NY-19-506033	10	04/16/2019	4	0	4		Edit Check
C4897095	NY-19-506033	2	04/16/2019	4	0	4		Edit Check
C4897095	NY-19-506033	3a	04/16/2019	4	0	4		Edit Check
C4897095	NY-19-506033	9	04/16/2019	4	0	4		Edit Check

Commercial Applicator **Business Associate** **Registration Contact**

[Add Role](#)

[Actions](#)

Certification Information

Certification # **C4897095**

Cert Status Current
 Card Status Issued - DMV

Original Date 11/15/2017
 Last Renew 11/21/2020
 Renew By 11/21/2023
 Expires 11/21/2025

Mailing Address

417 RIGOR HILL RD
 GHENT, NY 12075-4009
 USA

Contact Information

Home (347) 322-6932
 Email jbrudder@earthlink.net

Physical Address

417 RIGOR HILL RD
 GHENT, NY 12075-4009
 Region 4

Categories Earned

Code	Original Date	Recertification	Last Recertification	Drop Date	Actions
2	03/02/2020	11/21/2023	11/21/2023		
3a	03/02/2020	11/21/2023	11/21/2023		
6a	11/15/2017	11/21/2023	11/21/2020		

Attachment C

Business Registration
Return to Applicator | Actions

TACONIC INVASIVE PLANT CONTROL LLC

Public ID: 1802226
 Ownership Type: LIMITED LIABILITY COMPANY
 Address: 417 RIGOR HILL RD, GHENT, NY 12075, USA
 Business Phone: (347) 322-6932
 Email: jmrudger@earthlink.net
 Created On: 10/13/2021 2:02 PM
 Updated On: 10/13/2021 2:02 PM
 Updated By: bpobrien

Red Flags: No red flags

PRL Violations (Unresolved): No unresolved PRL violations

Primary Associate: **JOSHUA H. RUDDER**
 417 RIGOR HILL RD, GHENT, NY 12075-4009, USA

TACONIC INVASIVE PLANT CONTROL LLC - GHENT

Business Registration #: 110226
 Status: Issued
 Site Address: 417 RIGOR HILL RD, GHENT, NY 12075, USA
 Region: 4 (COLUMBIA)
 Phone: (347) 322-6932

History

Registration Effective Dates: Issued: 10/21/2021, Expiration: 06/30/2024

Registration Details | DBA Names | Site | Applicators | Associates | Registration Contacts | Payments/Invoices | Documents

Pesticide Categories

Category	Start Date	End Date
2 - Forest	10/13/2021	
3a - Ornamental and Turf	10/13/2021	
6a - Rights-of Way Vegetation	10/13/2021	

Decals

Year	First Number	Last Number	Decals	Date Issued	Actions
2024	17549	17550	2	12/21/2021	

Insurance

Insurer	Coverage Start	Coverage End	Notes	Actions
Michigan Millers Mutual Ins Co	10/13/2021	10/04/2022		

Transaction History Add

Name	Date	Action	Description	Flagged	Actions
bpobrien	12/21/2021 10:46 AM	Decal Info	Decal info added.		
bpobrien	10/21/2021 9:46 AM	Authorization Status Changed	Business Registration status changed from Approved to Issued		
bpobrien	10/21/2021 9:46 AM	Registration Issued	Issue Date: 10/21/2021, Expiration Date: 06/30/2024.		
System	10/19/2021 9:00 PM	Registration Issued	Updated Invoice 27684 with new data from FMIS		

Specimen Label

GLYPHOSATE	GROUP	9	HERBICIDE
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HERBICIDE

® TM Trademarks of Dow AgroSciences, DuPont or Pioneer and their affiliated companies or respective owners

For control of annual and perennial weeds and woody plants in natural and production (plantations), forests for site preparation, mid-rotation release treatments, timber stand improvement activities, noncrop sites including industrial sites, rights-of-way (including roadsides, electric utility and communication transmission lines, pipelines, railroads, airports), irrigation and drainage ditches, canals, reservoirs, natural areas (including wildlife management areas, wildlife openings, wildlife habitats and refuges, parks and recreational areas, campgrounds, trailheads and trails), rangeland, and in and around aquatic sites and wetlands; also for perennial grass release, and grass growth suppression and grazed areas on these sites.

Avoid contact of herbicide with foliage, green stems, exposed non-woody roots or fruit of crops, desirable plants and trees, because severe injury or destruction may result.

Active Ingredient:

glyphosate † N-(phosphonomethyl)glycine, isopropylamine salt	53.8%
Other Ingredients	46.2%
Total	100.0%

† Contains 5.4 lb per gallon glyphosate, isopropylamine salt (4 lb per gallon glyphosate acid).

Precautionary Statements

Hazards to Humans and Domestic Animals

EPA Reg. No. 62719-324

Keep Out of Reach of Children

CAUTION

Harmful if Inhaled • Avoid breathing spray mist. Remove contaminated clothing and wash before reuse. Wash thoroughly with soap and water after handling.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in Worker Protection

Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

User Safety Recommendations

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

First Aid

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

Environmental Hazards

Do not contaminate water when cleaning equipment or disposing of equipment washwaters. Treatment of aquatic weeds can result in oxygen depletion or loss due to decomposition of dead plants. This oxygen loss can cause fish suffocation.

In case of leak or spill, soak up and remove to a landfill.

Physical or Chemical Hazards

Spray solutions of this product should be mixed, stored and applied using only stainless steel, aluminum, fiberglass, plastic or plastic-lined steel containers.

Do not mix, store or apply this product or spray solutions of this product in galvanized steel or unlined steel (except stainless steel) containers or spray tanks. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas, which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Read all Directions for Use carefully before applying.

This is an end-use product. Dow AgroSciences does not intend and has not registered it for reformulation.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Chemical-resistant gloves made of any waterproof material
- Shoes plus socks

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Keep people and pets off treated areas until spray solution has dried.

Storage and Disposal

Do not contaminate water, food, feed or seed by storage or disposal.

Pesticide Storage: Store above 10°F (-12°C) to keep product from crystallizing. Crystals will settle to the bottom. If allowed to crystallize, place in a warm room 68°F (20°C) for several days to redissolve and roll or shake container or recirculate in mini-bulk containers to mix well before using.

Pesticide Disposal: Wastes resulting from use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, state or local procedures.

Nonrefillable containers 5 gallons or less:

Container Handling: Nonrefillable container. Do not reuse or refill this container.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Refillable containers larger than 5 gallons:

Container Handling: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Nonrefillable containers 5 gallons or larger:

Container Handling: Nonrefillable container. Do not reuse or refill this container.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Product Information

This product is a broad spectrum, systemic, postemergent herbicide with no soil residual activity. It is intended for control of annual and perennial weeds and woody plants and brush. It is formulated as a water soluble liquid.

Time to Symptoms: The active ingredient in this product moves through the plant from the point of foliage contact to and into the root system. Visible effects are a gradual wilting and yellowing of the plant that advances to complete browning of above ground growth and deterioration of underground plant parts. Visible effects on most annual weeds occur within two to four days, but on most perennial weeds visible effects may not occur for seven days or more. Extremely cool or cloudy weather

following treatment may slow the activity of this product and delay development of visual symptoms.

Stage of Weeds: Annual weeds are easiest to control when they are small. Best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity. Refer to the annual, perennial and woody brush and trees rate tables for specific weeds. Always use the higher rate within the rate range for heavy or dense weed growth or when weeds are growing in an undisturbed (noncultivated) area. When treating weeds with disease or insect damage, weeds heavily covered with dust, or weeds under poor growing conditions, reduced weed control may result.

Cultural Considerations: Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed, or cut, and have not been allowed to regrow to the specified stage for treatment.

Rainfastness: Heavy rainfall soon after application may wash off this product from the foliage and a repeat application up to the labeled rate may be required for adequate control.

Spray Coverage: For best results, spray coverage should be uniform and complete.

Mode of Action: The active ingredient in this product inhibits an enzyme. This enzyme is found only in plants and microorganisms that are essential to forming specific amino acids.

No Soil Activity: Weeds must be emerged at the time of application to be controlled by this product. Weeds germinating from seed after application will not be controlled. Unemerged plants arising from unattached underground rhizomes or rootstocks of perennials will not be affected by the herbicide and will continue to grow.

Biological Degradation: Degradation of this product is primarily a biological process carried out by soil microbes.

Maximum Application Rates: The maximum application rates specified in this label are given in units of volume, either fluid ounces, pints or quarts, of this product per acre. The maximum allowed application rates apply to this product combined with the use of any and all other glyphosate- or sulfosate-containing herbicides, either applied separately or in a tank mix, on the basis of total pounds of glyphosate (acid equivalents) per acre. If more than one glyphosate- or sulfosate-containing product is applied to the same site within the same year, ensure that the total of pounds acid equivalent glyphosate does not exceed the maximum allowed.

Do not apply more than 8 quarts of this product (8 lb glyphosate acid) per acre per year for all use sites listed on this label.

IMPORTANT: When using this product, unless otherwise specified, mix with a surfactant, such as a nonionic surfactant containing 80% or greater active ingredient. For conifer release (pine release) use only surfactants that are approved for conifer release and specified on the surfactant label as safe for use in conifer release (pine release). Use of this product without surfactant will result in reduced herbicide performance. Ammonium sulfate, drift control additives, or dyes and colorants may be used. See Mixing Directions and the surfactant manufacturer's label for more information.

Grazing Restrictions: This product may be used to treat undesirable vegetation in utility rights-of-way that pass through pastures, rangeland, and forestry sites that are being grazed. For tank mix applications, comply with all restrictions appearing on the tank mix product label.

Except for lactating dairy animals there are no grazing restrictions following the labeled applications of this product.

For lactating dairy animals there are no grazing restrictions for the following labeled applications of this product:

- Where the spray can be directed onto undesirable woody brush and trees, including in handgun spray to wet or low volume directed spray treatments.
- For tree injection of frill applications and for cut stump treatments.

For broadcast applications, observe the following restrictions for lactating dairy animals:

- For application rates between 4.5 and 7.5 quarts per acre, no more than 15 percent of the available grazing area may be treated.
- For application rates less than 4.5 quarts per acre, no more than 25 percent of the available grazing area may be treated.

These restrictions do not apply to pastures, rangeland or forestry sites outside of utility rights-of-way.

Herbicide Resistance Management

Glyphosate, the active ingredient in this product, is a group 9 herbicide (inhibitor of EPSP synthase). Some naturally occurring weed biotypes that are tolerant (resistant) to glyphosate may exist due to genetic variability in a weed population. Where resistant biotypes exist, the repeated use

of herbicides with the same mode of action can lead to the selection for resistant weeds. Certain agronomic practices reduce the likelihood that resistant weed populations will develop, and can be utilized to manage weed resistance once it occurs.

To delay the selection for glyphosate resistant weeds, use the following practices:

- Scout fields before and after application to detect weed escapes or shifts in weed species.
- Start with a clean field by applying a burndown herbicide or by tillage.
- Control weeds early when they are small.
- Add other herbicides, including a selective and/or a residual herbicide, and cultural practices, including tillage or crop rotation, where appropriate.
- Use the application rate for the most difficult to control weed in the field. Do not tank mix with other herbicides that reduce this product's efficacy through antagonism or with ones that encourage application rates of this product below those specified on this label.
- Control weed escapes and prevent weeds from setting seeds.
- In situations where resistant weeds are a problem, before moving from one site to another, clean equipment to minimize the spread of weed seeds or plant parts.
- Use new commercial seed that is as free of weed seed as possible.
- Report any incidence of repeated non-performance of this product against a particular weed species to the local retailer, county extension agent, or Dow AgroSciences representative.

The following good agronomic practices are recommended to reduce the spread of confirmed glyphosate-resistant biotypes:

- Tank mix this product or apply it sequentially with an appropriately labeled herbicide with a different mode of action to achieve control if a naturally occurring resistant biotype is present in the site.
- Cultural and mechanical control practices, including crop rotation or tillage, may also be used.
- To control weed escapes, including resistant biotypes, before they set seed, scout treated sites after applying this product.
- Thoroughly clean equipment before leaving any site known to contain resistant biotypes.

Because the presence of glyphosate resistance in weed populations is difficult to detect prior to use, Dow AgroSciences accepts no liability for any losses that may result from the failure of this product to control glyphosate-resistant weeds.

Attention

Avoid contact of herbicide with foliage, green stems, exposed non-woody roots or fruit of crops, desirable plants and trees, because severe injury or destruction may result.

AVOID DRIFT. Use extreme care when applying this product to prevent injury to desirable plants and crops.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended. The likelihood of injury occurring from the use of this product increases when winds are gusty, as wind velocity increases, when wind direction is constantly changing, or when there are other meteorological conditions that favor spray drift. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) which are likely to drift. **Avoid applying at excessive speed or pressure.**

NOTE: Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences. Keep container closed to prevent spills and contamination.

Spray Drift Management

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment- and weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulations.

- The distance of the outermost nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
- Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they must be observed.

The applicator must be familiar with and take into account the information covered in the Aerial Drift Reduction Advisory.

Aerial Drift Reduction Advisory

This section is advisory in nature and does not supersede the mandatory label requirements.

Importance of Droplet Size: The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent adverse effects from drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

Controlling Droplet Size:

- **Volume** - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- **Pressure** - Do not exceed the nozzle manufacturer's recommended pressures. Use the lower spray pressures for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- **Number of Nozzles** - Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle Orientation** - Orienting nozzles so that the spray is parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- **Nozzle Type** - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

Boom Length: For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

Application Height: Applications must not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

Swath Adjustment: When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance must increase with increasing drift potential (higher wind, smaller drops, etc.).

Wind: Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Do not apply this product when wind speed is below 2 mph due to variable wind direction and high inversion potential. **Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

Temperature and Humidity: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

Temperature Inversions: Do not apply this product during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a connected cloud (under low wind conditions) indicates an inversion, while smoke that moves upwards and rapidly dissipates indicates good vertical air mixing.

Sensitive Areas: Apply this pesticide only when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

Mixing Directions

Use only clean, stainless steel, fiberglass, plastic or plastic-lined steel containers to mix, store and apply spray solutions of this product. Do not mix, store or apply this product or spray solutions of this product in galvanized steel or unlined steel, except stainless steel, containers or spray tanks.

Eliminate any risk of siphoning the contents of the tank mix back into the carrier source while mixing. Use approved anti-back-siphoning devices where required by state or local regulations.

Note: Reduced results may occur if water containing soil is used, including visibly muddy water or water from ponds and ditches that is not clear.

Rodeo – Alone

This product mixes readily with water. Mix spray solutions of this product as follows:

1. Fill the mixing or spray tank with the required amount of clean water.
2. Add the specified amount of this product and nonionic surfactant near the end of the filling process and mix well.
3. During mixing and application, foaming of the spray solution may occur. To prevent or minimize foaming, avoid the use of mechanical agitators, terminate by-pass and return lines at the bottom of the tank and, if needed, use an approved anti-foam or defoaming agent.

Rodeo – Tank Mix

This product does not provide residual weed control. For residual weed control or an alternate mode of action, tank mix this product with other herbicides. It is the pesticide user’s responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture..

Under certain conditions, at certain growth stages, and/or under other circumstances, some tank mix products have the potential to cause injury. Read all labels for products used in the tank mix prior to using them to determine the potential for crop injury.

Tank mixing with other herbicides, insecticides, fungicides, micronutrients or foliar fertilizers may result in reduced weed control or injury. Do not use these products in applications with this product unless otherwise noted in this label. To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of this product with herbicides or other materials that are not expressly specified in this labeling. Mixing this product with herbicides or other materials not specified on this label may result in reduced performance.

The user is responsible for ensuring that the specific application being made is included on the label of the product used in the tank mix when a tank mixture with a generic active ingredient, including 2,4-D, atrazine, dicamba, diuron, or pendimethalin, is used.

Read all individual product labels for all products in the tank mix and observe all precautions and restrictions on the label. Use according to the most restrictive directions for each product in the tank mix. Always predetermine the compatibility of all tank mix products, together in the carrier, by mixing small proportional quantities in advance of mixing and applying them to the use site. Add the tank mix product to the tank as directed by the label. Maintain agitation and add the required amount of this product.

Maintain good agitation at all times until the contents in the tank are sprayed. If the mixture is allowed to settle, thorough agitation is required to resuspend the mixture before spraying resumes. Keep the bypass line on or near the bottom of the tank to minimize foaming. The screen size in the nozzle or line strainers must be no finer than 50 mesh.

Note: If tank mixing with Garlon® 3A herbicide, ensure that Garlon 3A is well mixed with at least 75 percent of the total spray volume before adding this product to the spray tank to avoid incompatibility.

Hand-Held Sprayers

Prepare the desired volume of spray solution by mixing the amount of this product in water as shown in the following table:

Spray Concentration (percent)	Amount of this Product for Desired Volume:		
	1 gal	25 gal	100 gal
0.5	2/3 fl oz	1 pt	2 qt
0.75	1 fl oz	1 1/2 pt	3 qt
1	1 1/3 fl oz	1 qt	1 gal
1.5	2 fl oz	1 1/2 qt	1 1/2 gal
2	2 2/3 fl oz	2 qt	2 gal
3.75	5 fl oz	3 3/4 qt	3 3/4 gal
5	6 1/2 fl oz	1 1/4 gal	5 gal
10	13 fl oz	2 1/2 gal	10 gal

Nonionic Surfactant

When using this product, unless otherwise specified, mix with a surfactant, including a nonionic surfactant containing 80% or more active ingredient. For conifer release (pine release), use only surfactants that are approved for conifer release and specified on the surfactant label as safe for use in conifer release. Using this product without surfactant will result in reduced herbicide performance.

Colorants or Dyes

Agriculturally-approved colorants or marking dyes may be added to this product. Colorants or dyes used in spray solutions of this product may reduce performance, especially at lower rates or dilutions. Use colorants or dyes according to the manufacturer's directions.

Drift Control Additives

Drift control additives may be used with all equipment types except wiper applicators, sponge bars and CDA equipment. When a drift control additive is used, it is the pesticide user’s responsibility to ensure that all products in the listed mixtures are registered for the intended use. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture..

Application Equipment and Application Methods

Chemigation: Do not apply this product through any type of irrigation system.

Apply spray solutions in properly maintained and calibrated equipment capable of delivering desired volumes.

This product may be applied with the following application equipment and application methods.

Aerial Application

Equipment: Fixed wing and helicopter

Do not apply this product using aerial spray equipment except under conditions as specified within this label.

Avoid drift. Do not apply when winds are gusty or under any other condition which favors drift. Drift may cause damage to any vegetation contacted to which treatment is not intended. To prevent injury to adjacent desirable vegetation, maintain appropriate buffer zones.

Do not directly apply to any body of water.

Use the specified rates of this herbicide in 3 to 25 gallons of water per acre unless otherwise specified on this label. Refer to the specific use directions of this label for volumes and application rates.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations that dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure. A drift control additive may be used. When a drift control additive is used, carefully read and observe the precautionary statements and all other information specified on the additive label.

Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices.

Aerial Application Restrictions in California Only

AVOID DRIFT: Do not apply when winds are gusty or under any other condition which favors drift. Drift may cause damage to any vegetation contacted to which treatment is not intended. To prevent injury to adjacent desirable vegetation, appropriate buffer zones must be maintained.

Do not aerially apply this product in a tank mix with dicamba in California.

Make aerial applications with helicopter only. To ensure uniform application, avoid streaking, uneven, or overlapped application, and use appropriate marking devices.

Use the following guidelines when aerial applications are made near crops or desirable perennial vegetation after budbreak and before total leaf drop, and/or near other desirable vegetation or annual crops:

- Do not apply this product using aerial equipment in residential areas.
- Do not apply within 100 feet of all desirable vegetation or crop(s).
- If wind up to 5 miles per hour is blowing toward desirable vegetation or crop(s), do not apply within 500 feet of the desirable vegetation or crop(s).
- Winds blowing from 5 to 10 miles per hour toward desirable vegetation or crop(s) may require buffer zones in excess of the 500-foot minimum buffer.
- Do not apply when winds are in excess of 10 miles per hour or when inversion conditions exist.

Use only coarse sprays to minimize drift. Do not use nozzles or nozzle configurations that dispense spray as fine spray droplets. Do not angle nozzles forward into the airstream and do not increase spray volume by increasing nozzle pressure above the manufacturer's directions.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of this product accumulated during spraying or from spills. Prolonged exposure of this product to uncoated steel surfaces may result in corrosion and possible failure of the part. Landing gear is most susceptible. The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38413 may prevent corrosion.

**ADDITIONAL LIMITATIONS FOR AERIAL APPLICATION
IN FRESNO COUNTY, CALIFORNIA ONLY**

Always read and follow the label directions and precautionary statements for all products used in the aerial application.

The following information applies only from February 15 through March 31 within the following boundaries of Fresno County, California:
North: Fresno County line
South: Fresno County line
East: State Highway 99 West

Observe the following directions to minimize off-site movement during aerial application of this product. Minimization of off-site movement is the responsibility of the grower, Pest Control Advisor and aerial applicator.

Written Directions

Written directions MUST be submitted by or on behalf of the applicator to the Fresno County Agricultural Commissioner 24 hours prior to the application. These written directions MUST state the proximity of surrounding crops and that conditions of each manufacturer's product label and this label have been satisfied.

Aerial Applicator Training and Equipment

Aerial application of this product is limited to pilots who have successfully completed a Fresno County Agricultural Commissioner and California Department of Pesticide Regulation approved training program for aerial application of herbicides. All aircraft must be inspected, critiqued in flight and certified at a Fresno County Agricultural Commissioner approved fly-in. Test and calibrate spray equipment at intervals sufficient to insure that proper rates of herbicides and adjuvants are being applied during commercial use. Applicator must document such calibrations and testing. Demonstration of performance at Fresno County Agricultural Commissioner approved fly-ins constitutes such documentation, or other written records showing calculations and measurements of flight and spray parameters acceptable to the Fresno County Agricultural Commissioner.

Applications at Night – Do not apply this product by air earlier than 30 minutes prior to sunrise and/or later than 30 minutes after sunset without prior permission from the Fresno County Agricultural Commissioner.

To report known or suspected misuse of this product, call 1-800-332-3111.

For additional information on the proper aerial application of this product in Fresno County, call 916-784-1718.

Aquatic and Noncrop Sites

When this product is applied under the conditions described, it controls or partially controls the labeled weeds growing in the following industrial, recreational, and public areas or other similar sites.

Aquatic sites includes all bodies of fresh and brackish water that may be flowing, nonflowing, or transient-including lakes, rivers, streams, ponds, seeps, irrigation and drainage ditches, canals, reservoirs, estuaries and similar sites.

If aquatic sites are present in the noncrop area and are part of the intended treatment, read and observe the following directions:

- This product does not control plants that are completely submerged or have a majority of their foliage under water.
- There is no restriction on the use of treated water for irrigation, recreation, or domestic purposes.

Spray Solution:

Desired Volume	Amount of This Product								
	0.5	0.75	1	1.25	1.5	2	5	8	10
1 gal	2/3 fl oz	1 fl oz	1 1/3 fl oz	1 2/3 fl oz	2 fl oz	2 2/3 fl oz	6 1/2 fl oz	10 1/4 fl oz	13 fl oz
25 gal	1 pt	1 1/2 pt	1 qt	1 1/4 qt	1 1/2 qt	2 qt	1 1/4 gal	2 gal	2 1/2 gal
100 gal	2 qt	3 qt	1 gal	1 1/4 gal	1 1/2 gal	2 gal	5 gal	8 gal	10 gal

2 Tablespoons = 1 fl oz

For best results when using knapsack sprayers, mix the specified amount of product with water in a larger container. Fill the knapsack sprayer with the solution and add the correct amount of surfactant.

Selective Equipment

Equipment: Recirculating sprayers, shielded and hooded sprayers, wiper applicators and sponge bars.

Do not contact desirable vegetation with herbicide. Droplets, mist, foam, or splatter of the herbicide settling on desirable vegetation is likely to result in discoloration, stunting or destruction.

Better results are obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations, or

- Consult local and state fish and game agency and water control authorities before applying this product to public water. Permits may be required to treat such water.
- To make aquatic applications around and within 1/2 mile of active potable water intakes, the water intake must be turned off for a minimum period of 48 hours after the application. The water intake may be turned on prior to 48 hours if the glyphosate level in the intake water is below 0.7 parts per million as determined by laboratory analysis. These aquatic applications may be made only in those cases where there are alternative water sources or holding ponds that would permit the turning off of an active potable water intake for a minimum period of 48 hours after the application.

Restrictions:

- Do not apply this product within 1/2 mile upstream of an active potable water intake in flowing water (i.e., river stream, etc.), or within 1/2 mile of an active potable water intake in a standing body of water, such as a lake, pond, or reservoir.

Ground Application

Equipment: Boom or boomless systems, pull-type sprayer, floaters, pick-up sprayers, spray coupes and other ground broadcast equipment.

Use the specified rates of this product in 3 to 40 gallons of water per acre as a broadcast spray unless otherwise specified on this label. As density of weeds increases, increase the spray volume within the rate range to ensure complete coverage. Carefully select proper nozzles to avoid spraying a fine mist. For best results with ground application equipment, use flat fan nozzles. Check for even distribution of spray droplets.

Hand-Held and High-Volume Including Backpack Application

Equipment: Knapsack and backpack sprayers, pump up pressure sprayers, handguns, hand wands, mistblowers, lances, and other hand-held and motorized spray equipment used to direct the spray onto weed foliage. **Note:** This product is not registered in Arizona or California for use in mistblowers.

Apply to foliage of vegetation to be controlled. Do not spray to the point of runoff for applications made on a spray to wet basis. Use coarse sprays only. For best results, cover the top half of the plant and at least half of the total foliage. To ensure adequate spray coverage, spray both sides of large or tall woody brush and trees, when foliage is thick and dense, or where there are multiple sprouts.

High Volume Sprays: Prepare a 3/4 to 2 percent solution of this product in water, add a nonionic surfactant and apply to foliage of vegetation to be controlled. For specific rates of application and instructions for control of various annual and perennial weeds, see the Weeds Controlled section.

Make applications on a spray to wet basis with uniform and complete spray coverage. Do not spray to point of runoff.

Low Volume Directed Sprays: This product may be used as a 5 to 10 percent solution in low volume directed sprays for spot treatment of trees and brush. This treatment method is most effective in areas where there is a low density of undesirable trees or brush. If a straight stream nozzle is used, start the application at the top of the targeted vegetation and spray from top to bottom in a lateral zigzag motion. Ensure that at least 50 percent of the leaves are contacted by the spray solution. For flat fan and cone nozzles and with hand-directed mist blowers, mist the application over the foliage of the targeted vegetation. Treat small, open-branched trees only from one side. If the foliage is thick or there are multiple root sprouts, apply from several sides to ensure adequate spray coverage. Prepare the desired volume of spray solution by mixing the amount of this product in water as shown in the following table.

when the height of weeds varies so that not all weeds are contacted. If this occurs, repeat treatment up to the labeled rate may be necessary.

Shielded and Hooded Applicators: A shielded or hooded applicator directs the herbicide solution onto weeds while shielding desirable vegetation from the herbicide. Use nozzles that provide uniform coverage within the treated area. Keep shields on these sprayers adjusted to protect desirable vegetation. **Exercise extreme care to avoid contact of the herbicide with desirable vegetation.**

Wiper Applicators: Wiper applicators are devices that physically wipe appropriate amounts of this product directly onto the weed. Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation.

Adjust wiper applicators used over the top of desirable vegetation so that the wiper contact point is at least 2 inches above the desirable vegetation. Better results are obtained when more of the weed is exposed to the herbicide solution. Weeds should be a minimum of 6 inches above the desirable vegetation. Adjust the applicator height to ensure adequate contact with weeds as weeds not contacted by the herbicide solution will not be affected. Poor contact may occur when weeds are growing in dense clumps, in severe weed infestations, or when weed height varies dramatically. If this occurs, repeat treatment up to the labeled rate may be necessary.

Operate this equipment at ground speeds no more than 5 mph. Performance may be improved by reducing speed in areas of heavy weed infestations to ensure adequate wiper saturation. Better results may be obtained if two applications are made in opposite directions.

Droplets, mist, foam, or splatter of the herbicide settling onto desirable vegetation may result in discoloration, stunting or destruction. Avoid leakage or dripping onto desirable vegetation. Adjust height of applicator to ensure adequate contact with weeds. Keep wiping surfaces clean. Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying of the wicks on the upper end of a wiper applicator.

Do not use wiper equipment when weeds are wet.

Mix only the amount of solution to be used during a one-day period as reduced activity may result from use of leftover solutions. Clean wiper parts by thoroughly flushing with water immediately after using this product.

For best results, use a nonionic surfactant at a rate of 10 percent by volume of total herbicide solution for all wiper applications.

Rope or Sponge Wick Applicators: Use solutions of 33 to 75 percent of this product in water.

Panel Applicator: Use solutions of 33 to 100 percent of this product in water.

Injection Systems

Equipment: Aerial or ground injection sprayers.

This product may be used in aerial or ground injection spray systems. It may be used as a liquid concentrate or diluted prior to injecting into the spray stream. Do not mix this product with the concentrate of other products when using injection systems.

Controlled Droplet Applicator (CDA)

Equipment: Hand-held or boom-mounted applicators that produce a spray consisting of a narrow range of droplet sizes.

The rate of this product applied per acre by vehicle-mounted CDA equipment must not be less than the amount specified on this label when applied by conventional broadcast equipment. For vehicle-mounted CDA equipment, apply 3 to 15 gallons of water per acre.

For the control of annual weeds with hand-held CDA units, apply a 20 percent solution of this product at a flow rate of 2 fl oz per minute and a walking speed of 1.5 mph (1 1/2 pints of product per acre). For control of perennial weeds, apply a 20 to 40 percent solution of this product at a flow rate of 2 fl oz per minute and a walking speed of 0.75 mph (3 to 6 pints of product per acre).

CDA equipment produces a spray pattern that is not easily visible. Exercise extreme care to avoid spray or drift contacting the foliage or any other green tissue of desirable vegetation as damage or destruction may result.

Use Sites

Use this product in noncrop areas, including airports, apartment complexes, aquatic sites, Christmas tree farms, commercial sites, Conservation Reserve Program (CRP) areas, ditch banks, driveways, dry ditches, dry canals, fencerows, golf courses, greenhouses, habitat management, industrial areas, lumber yards, manufacturing sites, municipal sites, natural areas, office complexes, ornamentals, parking areas, parks, pastures, petroleum tank farms and pumping installations, plant nurseries, public areas, railroads, rangeland, recreation areas, utility rights-of-way, roadsides, shadehouses, sod or turf seed farms, sports complexes, storage areas, substations, turfgrass areas, utility sites, warehouse areas, wildlife habitat management areas, and in grazed areas on these sites.

Aquatic Sites

This product may be applied to emerged weeds in all bodies of fresh and brackish water that may be flowing, nonflowing or transient including lakes, rivers, streams, ponds, estuaries, rice levees, seeps, irrigation and drainage ditches, canals, reservoirs, wastewater treatment facilities, wildlife habitat restoration and management areas and similar sites.

If aquatic sites are present in the noncrop area and are part of the intended treatment, read and observe the following directions:

- This product does not control plants that are completely submerged or have a majority of their foliage under water.
- There is no restriction on the use of treated water for irrigation, recreation or domestic purposes.
- Consult local and state fish and game agency and water control authorities before applying this product to public water. Permits may be required to treat such water.
- To make aquatic applications around and within 1/2 mile of active potable water intakes, the water intake must be turned off for a minimum period of 48 hours after the application. The water intake may be turned on prior to 48 hours if the glyphosate level in the intake water is below 0.7 parts per million as determined by laboratory analysis. These aquatic applications may be made **only** in those cases where there are alternative water sources or holding ponds which would permit the turning off of an active potable water intake for a minimum period of 48 hours after the application.
- For treatments after draw down of water or in dry ditches, allow 7 days or more after treatment before reintroduction of water to achieve maximum weed control. Apply this product within 1 day after draw down to ensure application to actively growing weeds.
- Floating mats of vegetation may require retreatment up to the labeled rate. Avoid wash off of sprayed foliage by spray boat or recreational boat backwash or by rainfall within 6 hours of application. Do not retreat within 24 hours following the initial treatment.
- Applications made to moving bodies of water must be made while traveling upstream to prevent concentration of this herbicide in water. When making any bankside applications, do not overlap more than 1 foot into open water. Do not spray in bodies of water where weeds do not exist. The maximum application rate of 7 1/2 pints per acre must not be exceeded in any single broadcast application that is being made over water.
- When emerged infestations require treatment of the total surface area of impounded water, treating the area in strips may avoid oxygen depletion due to decaying vegetation. Oxygen depletion may result in fish kill.

Restrictions:

- Do not apply this product directly to water within 1/2 mile upstream of an active potable water intake in flowing water (i.e., river, stream, etc.), or within 1/2 mile of an active potable water intake in a standing body of water, such as a lake, pond or reservoir. This restriction does not apply to intermittent inadvertent overspray of water in terrestrial use sites.

Wetland Sites

This product may be applied to undesirable vegetation in and around water (aquatic areas) and wetlands found in forestry, utility rights-of-way sites or other site listed on the label, including where these sites are adjacent to or surrounding domestic water supply reservoirs, supply streams, lakes and ponds.

If wetland sites are present, read and observe the following directions:

- There is no restriction on the use of treated water for irrigation, recreation or domestic purposes.
- Consult local public water control authorities before applying this product in and around public water. Permits may be required to treat in such areas.

Restrictions:

- Do not apply this product directly to water within 1/2 mile upstream of an active potable water intake in flowing water (i.e., river, stream, etc.), or within 1/2 mile of an active potable water intake in a standing body of water, such as a lake, pond or reservoir. This restriction does not apply to intermittent inadvertent overspray of water in terrestrial use sites.
- Do not spray open bodies of water where woody brush, trees and herbaceous weeds do not exist. Do not apply more than 3 3/4 quarts per acre in a single over water broadcast application except in stream crossings in utility right-of-way or where applications will result in less than 20 percent of the total water area being treated. In either of these locations, any specified rate may be applied:

Christmas Tree Plantations

Broadcast Application (Oregon and Washington Only)

Broadcast apply this product over the established Christmas tree species Douglas fir (*Pseudotsuga menziesii*), fir species (*Abies* spp.), and pine species (*Pinus* spp.) (except eastern white, loblolly, longleaf, shortleaf, slash), and spruce species (*Picea* spp.). Use 1 quart of this product per acre in 5 to 30 gallons of water per acre. For best results, add up to 10 fl oz of Entry II surfactant per acre. If using a different surfactant, follow the manufacturer's directions for use and ensure conifer safety has been adequately tested for that surfactant. Apply after trees have completed at least a full growing season since planting or transplanting.

Apply only in the fall after the formation of the final conifer resting buds or in the spring prior to initial bud swell. Final resting buds must be fully hardened and in the dormant stage. Applying this product at any other time may result in unacceptable injury to the Christmas trees. Avoid spray pattern overlap as injury may occur.

In some areas, 1 to 2 quarts of this product per acre may be used. Consult your local representative for specific use instructions if rates greater than 1 quart per acre are required.

For best results, do not use drift control additives as they may increase injury to Christmas trees.

Precautions:

- Ensure that adequate buffers are maintained to prevent drift onto nearby desirable crops or vegetation.

Restrictions:

- **Preharvest Interval:** Do not apply within 1 full year prior to tree harvest.

Cut Stump

Treat cut stumps in any noncrop site listed on this label. This product will control regrowth of freshly cut stumps and resprouts of many types of woody brush and tree species, some of which are listed below. Apply this product using suitable equipment to ensure coverage of the entire cambium. Cut trees or resprouts close to the soil surface. Apply a 50 to 100 percent solution of this product to freshly cut surface immediately after cutting. Delays in application may result in reduced performance. For best results, make applications during periods of active growth and full leaf expansion.

When used according to directions for cut stump application, this product will control, partially control or suppress most woody brush and tree species, some of which are listed below:

Common Name	Scientific Name
alder	<i>Alnus</i> spp.
coyotebrush ¹	<i>Baccharis pilularis</i>
dogwood ¹	<i>Cornus</i> spp.
eucalyptus	<i>Eucalyptus</i> spp.
hickory ¹	<i>Carya</i> spp.
madrone, Pacific	<i>Arbutus menziesii</i>
maple ¹	<i>Acer</i> spp.
oak	<i>Quercus</i> spp.
peppertree, Brazilian	<i>Schinus terebinthifolius</i>
Australian-pine,	<i>Casuarina equisetifolia</i>
poplar ¹	<i>Populus</i> spp.
reed, giant	<i>Arundo donax</i>
saltcedar	<i>Tamarix ramosissima</i>
sweetgum ¹	<i>Liquidambar styraciflua</i>
sycamore ¹	<i>Platanus occidentalis</i>
tan oak	<i>Lithocarpus densiflorus</i>
willow	<i>Salix</i> spp.

¹Do not use this product on these species in the state of California.

Precautions:

- Adjacent trees that are of a similar age, height and spacing may indicate shared roots.
- Injury is likely to occur to non-treated stems or trees when one tree or more that shares a common root is treated.

Restrictions:

- Do not make cut stump applications when the roots of desirable woody brush or trees may be grafted to the roots of the cut stump. Some sprouts, stems, or trees may share the same root system.

Injection and Frill (Woody Brush and Trees)

Woody vegetation may be controlled by injection or frill application of this product. Apply this product using suitable equipment that penetrates into the living tissue. Apply the equivalent of 1 mL of this product per each two to three inches of trunk diameter at breast height (DBH). This is best achieved by applying 50 to 100 percent concentration of this product either to a continuous frill around the tree or as cuts evenly spaced around the tree below all branches. As tree diameter increases in size, better results are achieved by applying diluted material to a continuous frill or more closely spaced cuttings. Do not make any applications that allow runoff to occur from frilled or cut areas in species that exude sap freely. In species such as this, make frill or cuts at an oblique angle to produce a cupping effect and use a 100 percent undiluted concentration of this product. For best results, apply during periods of active growth and full leaf expansion.

This product controls the following woody species:

Common Name	Scientific Name
oak	<i>Quercus</i> spp.
poplar	<i>Populus</i> spp.
sweetgum	<i>Liquidambar styraciflua</i>
sycamore	<i>Platanus occidentalis</i>

This product suppresses the following woody species:

Common Name	Scientific Name
blackgum ¹	<i>Nyssa sylvatica</i>
dogwood	<i>Cornus</i> spp.
hickory	<i>Carya</i> spp.
maple, red	<i>Acer rubrum</i>

¹Do not use this product on these species in the state of California.

Forestry Site Preparation

This product is for the control or partial control of woody brush, trees, and herbaceous weeds in forestry. This product is also for use in preparing or establishing wildlife openings within these sites and maintaining logging roads.

In forestry sites, use this product in site preparation prior to planting any tree species including Christmas trees, eucalyptus, hybrid tree cultivars and silvicultural nursery sites. Unless otherwise specified, make applications of this product for control or partial control of herbaceous weeds, woody brush and trees listed in the Weeds Controlled section.

Application Rates

Method of Application	Rate	Spray Volume (gal/acre)
Broadcast		
aerial	1.5 - 7.5 qt/acre	5 - 30
ground		10 - 60
Spray to Wet		
handgun, backpack	0.75 - 2%	spray to wet
mistblower	by volume	
Low Volume Directed Spray¹		
handgun, backpack	5 - 10%	partial coverage
mistblower	by volume	

¹ For low volume directed spray applications, coverage should be uniform with at least 50% of the foliage contacted. For best results, coverage of the top one-half of the plant, including the growing tip, is important (over the top and down coverage). To ensure adequate spray coverage, spray all sides of large or tall woody brush and trees, when foliage is thick and dense, or where there are multiple stems or tall sprouts.

Use a higher rate in the rate range for control or partial control of woody brush, trees and hard to control perennial herbaceous weeds. For best results, apply to actively growing woody brush and trees after full leaf expansion and before leaf drop. Use increased rates within the rate range to control perennial herbaceous weeds from emergence up to the appearance of seedheads, flowers or berries. Use a lower rate in the rate range to control annual herbaceous weeds and actively growing perennial herbaceous weeds after seedheads, flowers or berries appear. Apply to foliage of actively growing annual herbaceous weeds anytime after emergence.

This product has no herbicidal or residual activity in the soil. Where repeat applications up to the labeled rate are necessary, do not apply more than 8 quarts of product per acre per year.

Tank Mixes

This product may be used in tank mix combination with other herbicide products to broaden the spectrum of vegetation controlled. When tank mixing, read and observe applicable use directions, precautions and limitations on the respective product labels. Use according to the most restrictive precautionary statements for each product in the mixture. Any specified rate of this product may be used in a tank mix.

Note: For forestry site preparation, make sure the tank mix product is approved for use prior to planting the desired species. Observe planting interval restrictions.

Any specified rate of this product may be used in a tank mix with the following products for forestry site preparation:

Product
Milestone VM
Garlon 3A
Garlon 4
Arsenal Applicators Concentrate
Escort
Chopper
Oust XP
Arsenal Applicators Concentrate
Arsenal Applicators Concentrate

For control of herbaceous weeds, use the lower specified tank mixture rates. For control of dense stands or difficult to control woody brush and trees, use the higher specified rates.

Aerial Application

Aerially apply this product by helicopter only in forestry sites. See Aerial Application in Application Equipment and Application Methods for more details.

Ground Application

Apply this product using suitable ground equipment for broadcast applications in forestry sites. See Ground Application in Application Equipment and Application Methods for more details. Unless otherwise specified, apply the specified rates of this product as a broadcast spray in sufficient spray volume to provide complete and uniform coverage of plant foliage. Check for even distribution throughout the spray pattern.

Hand-Held and Backpack Application

Apply this product using handgun and backpack equipment in forestry sites. See Hand-Held and Backpack Application in Application Equipment and Application Methods for more details. For spray to wet applications, coverage should be uniform and complete, but not to the point of runoff.

This product may be used for low volume directed sprays for spot treatment of trees and brush. It is most effective in areas where there is a low density of undesirable trees or brush. For flat fan and cone nozzles, spray the foliage of the targeted vegetation. Small, open branched trees need only be treated from one side. If the foliage is thick or there are multiple root sprouts, apply from several sides to ensure adequate spray coverage.

Forestry Conifer and Hardwood Release

Directed Sprays and Selective Equipment

Apply this product as a directed spray or with selective equipment in forestry conifer and hardwood sites, including Christmas tree plantations and silvicultural nurseries. A surfactant must be used with this product. Use only surfactants approved for conifer release and specified on the surfactant label as safe for use in conifer release (pine release). Using this product without a surfactant will result in reduced herbicide performance. See Mixing Directions and Application Equipment and Application Methods sections.

Avoid contact of spray drift, mist or drips with foliage, green bark or non-woody surface roots of desirable plant species.

Tank Mixes: When tank mixing, read and observe applicable use directions, precautions and limitations on the respective product labels. Use according to the most restrictive precautionary statements for each product in the mixture.

Broadcast Application Outside Area of Southeastern United States

Apply this product as a broadcast application for release of Douglas fir (*Pseudotsuga menziesii*), fir (*Abies* species), hemlock (*Tsuga* species), pines (*Pinus* species) (includes all species except loblolly, longleaf, shortleaf, or slash), and California redwood (*Sequoia* species) outside the area of the southeastern United States. Apply this product as a broadcast application only after formation of final conifer resting buds in the fall or prior to initial bud swelling in the spring. Note: Except where specified, make broadcast applications of this product only where conifers have been established for more than one year.

Injury may occur to conifers treated for release, especially where spray patterns overlap or the higher labeled rate is applied. Damage can be accentuated if applications are made when conifers are actively growing, are under stress from drought, flood water, improper planting, insects, animal damage or diseases.

Apply 3/4 to 1 1/2 quarts per acre as a broadcast spray. Apply 3/4 to 1 1/8 quarts of this product per acre to release Douglas fir, pine and spruce species at the end of the first growing season (except California). Ensure all conifers are well hardened off.

A surfactant must be used with this product for optimum weed control. Use only surfactants approved for use in over the top release applications. Using this product without a surfactant will result in reduced herbicide performance. For best results, do not use a surfactant for release of hemlock species or California redwood. In mixed conifer stands, injury to these species may result if a surfactant is used. See Mixing Directions and Application Equipment and Application Methods sections.

For release of Douglas fir, a nonionic surfactant for over the top foliar spray may be used. To avoid possible conifer injury, use nonionic surfactants at 2 fl oz per acre at elevations above 1500 feet, or 1 fl oz per acre in the coastal range or at elevations below 1500 feet. Using a higher rate of surfactant may result in unacceptable conifer injury. Ensure the nonionic surfactant has been adequately tested for safety to Douglas fir before using.

Tank Mixes with Oust XP: Apply 3/4 to 1 1/2 quarts of this product with the labeled rate of Oust XP per acre to release jack pine and white. Use the labeled rate of Oust XP per acre with this product to release white pine. Make applications to actively growing weeds as a broadcast spray over the top of established conifers. Make applications after formation of conifer resting buds in the late summer or fall.

Tank Mixes with Arsenal Applicators Concentrate: Apply 3/4 to 1 1/8 quarts of this product with the labeled rate of Arsenal Applicators Concentrate per acre to release Douglas fir. Apply 1 1/2 quarts of this product with the labeled rate of Arsenal Applicators Concentrate per acre to release balsam fir and red spruce.

In **Maine** and **New Hampshire**, apply up to 2 1/4 quarts of this product per acre to control or suppress difficult to control hardwood species. For the release of red pine, balsam fir, red spruce, white spruce, Norway spruce, and black spruce with dense tough to control brush, and where maples make up a large component of the undesirable trees, this product may be tank mixed with the labeled rate of Arsenal Applicators Concentrate and the labeled rate of Oust XP per acre. Apply this mix as a broadcast spray.

Broadcast Application in Southeastern United States

Apply this product as a broadcast application for release of loblolly pine (*Pinus taeda*), eastern white pine (*Pinus strobus*), shortleaf pine (*Pinus echinata*), slash pine (*Pinus elliotii*), Virginia pine (*Pinus virginiana*), and longleaf pine (*Pinus palustris*) in the southeastern United States.

Apply 1 1/8 to 1 7/8 quarts of this product per acre as a broadcast spray during late summer or early fall after the conifers have hardened off. For applications at the end of the first growing season, use 3/4 quart of this product alone or in a tank mix.

Tank Mixes with Arsenal Applicators Concentrate: For conifer release, apply 3/4 to 1 1/2 quarts of this product with the labeled rate of Arsenal Applicators Concentrate per acre as a broadcast spray. Use only on conifer species that are labeled for over the top spray for both products. Use the higher specified rates for dense tough to control wood brush and trees.

Herbaceous Release

When applied as directed, this product plus listed residual herbicides provide postemergence control of the annual weeds and control or suppression of the perennial weeds listed in this label, and residual control of the weeds listed in the residual herbicide label. Make applications to actively growing weeds as a broadcast spray over the top of labeled conifers.

Use a surfactant labeled for use in over the top herbaceous release applications. Using this product without a surfactant will result in reduced herbicide performance. See Mixing Directions and Application Equipment and Application Methods sections on this label.

Weed control may be reduced if spray solution water volumes exceed 25 gallons per acre for these treatments.

Tank Mixes with Oust XP: Apply 12 to 18 fl oz of this product with the labeled rate of Oust XP per acre to release loblolly pines. Apply 9 to 12 fl oz of this product with the labeled rate of Oust XP per acre to release slash pines.

Tank Mix with Atrazine: Apply 3/4 quarts of this product with 4 lb ai of atrazine per acre to release Douglas fir. Apply only over Douglas fir that has been established for at least one full growing season. Apply in the early spring, usually mid-March through early April. Injury will occur if applications are made after bud swell in the spring. For this use, do not add surfactant to the tank mix.

In **Maine** and **New Hampshire**, for release of red pine, balsam fir, red spruce, white spruce, Norway spruce, and black spruce with heavy grass and herbaceous weeds infesting the site, up to 2 1/4 quarts of this product per acre may be tank mixed with the labeled rate of Oust XP to control grass, herbaceous weeds and woody brush. Apply this mix as a broadcast spray.

Mid-Rotation Conifer Release and Spot Treatments for Crop Tree Release and Timber Stand Improvement

This product is applied as a ground broadcast or directed spray application for mid-rotation release applications under the canopy of pines (and other conifers) and hardwoods. Make applications using application techniques that prevent or minimize direct contact to the foliage of crop trees (including in stands of pine, other conifers, or hardwood). This may be accomplished using directed sprays and ground equipment with nozzles oriented to target only undesirable understory vegetation below the crop tree canopy. This product is applied as a spot, individual plant treatment for woody and herbaceous weeds (see Hand-Held and Backpack Application in Application Equipment and Application Methods section). When making spot applications, do not allow spray to contact the foliage of desirable crop trees.

Broadcast Application for Control of Undesirable Competitive Vegetation in Larch (*Larix* spp.) Plantations in Maine

Apply this product to control or reduce competition from undesirable vegetation in Larch (*Larix* spp.) plantations in the state of Maine.

Application Timing

Apply only after lignification has occurred in 50% or more of the current year's terminal growth.

Application Directions

Broadcast Spray: Use 1 to 3 quarts of this product per acre. Apply in a total spray volume of 10 to 60 gallons per acre using ground equipment or 5 to 15 gallons per acre if applied aerially. Up to 30 fl oz of Entry II surfactant may be added.

Directed Sprays: This product may be applied as a directed spray for competitive release of larch. Avoid contact of spray drift, mist or drips with foliage, green bark or non-woody surface roots of desirable plants. See Application Equipment and Application Methods of the product label.

Injury to larch may occur, especially where spray patterns overlap or higher labeled rates of this product or surfactant were applied. Damage can be accentuated if application is made when larch is actively growing or is under stress. Make applications only if some level of injury to larch is acceptable.

Noncrop Areas and Industrial Sites

See the rate tables in the Annual Weeds, Perennial Weeds, and Woody Brush and Trees sections for specific application rates. This product has no herbicidal or residual activity in the soil. Where repeat applications up to the labeled rate are necessary, do not apply more than 8 quarts of this product per acre per year.

Use a higher rate in the rate range for control or partial control of woody brush, trees, and hard to control perennial herbaceous weeds. For best results, apply to actively growing woody brush and trees after full leaf expansion and before fall color and leaf drop. Use increased rates within the rate range for difficult to control species, where dense stands occur, or where conditions for control are not ideal and to control perennial herbaceous weeds from emergence up to the appearance of seedheads, flowers or berries. Use a lower rate in the rate range to control annual herbaceous weeds and actively growing perennial herbaceous weeds after seedheads, flowers or berries appear. Apply to foliage of actively growing annual herbaceous weeds anytime after emergence.

Tank Mixing for Noncrop Areas

This product may be used in tank mix combination with other herbicide products to broaden the spectrum of vegetation controlled. When tank mixing, read and observe applicable use directions, precautions and limitations on the respective product labels. Use according to the most restrictive precautionary statements for each product in the mixture. Any specified rate of this product may be used in a tank mix.

Maintain good agitation at all times during the mixing process and application. Ensure that the tank mix product(s) is well mixed with the spray solution before adding this product. Mix only the amount of spray solution that will be used during the same day. Reduced weed control may result if a tank mixture is allowed to stand overnight. If the spray mix is allowed to settle, thorough agitation is required to resuspend the mixture before spraying is resumed.

Weed Control, Trim and Edge, and Bare Ground

This product may be used in general noncrop and non-food areas. It may be applied with any application equipment described in this label. This product may be used to trim and edge around objects in noncrop sites, for spot treatment of unwanted vegetation, and to eliminate unwanted weeds growing in established shrub beds or ornamental plantings. This product may be used prior to planting an area to ornamentals, flowers, turfgrass (sod or seed), or prior to laying asphalt or beginning construction projects.

To maintain bare ground, repeated applications up to the labeled rate of this product may be used.

This product provides control of emerged annual weeds and control or partial control of emerged perennial weeds, woody brush and trees when applied in a tank mix to bare ground.

Turfgrass Renovation, Seed or Sod Production

This product controls most existing vegetation prior to renovating turfgrass areas or establishing turfgrass grown for seed or sod. For maximum control of existing vegetation, delay planting or sodding to determine if any regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm season turfgrass, including bermudagrass, summer or fall applications provide the best control. Where existing vegetation is growing under mowed turfgrass

management, apply this product after omitting at last one regular mowing to allow sufficient grown for good interception of the spray.

Do not disturb soil or underground plant parts before treatment. Delay tillage or renovation techniques, including vertical mowing, coring, or slicing, for seven days after application to allow translocation into underground plant parts.

Desirable turfgrass may be planed following the above procedures.

Hand-held equipment may be used for spot treatment of unwanted vegetation growing in existing turfgrass. Broadcast or hand-held equipment may be used to control sod remnants or other unwanted vegetation after sod is harvested.

Do not feed or graze turfgrass grown for seed or sod production for eight weeks following application.

Ornamentals and Plant Nurseries

Post-Direct and Trim and Edge

This product may be used as a post-directed spray around established woody ornamental species, including arborvitae, azalea, boxwood, crabapple, euonymus, fir, Douglas fir, jojoba, hollies, lilac, magnolia, maple, oak, provet, pine, spruce and yew. This product may also be used to trim and edge around trees, buildings, sidewalks and roads, potted plants and other objects in a nursery setting.

Desirable plants may be protected from the spray solution by using shields or coverings made of cardboard or other impermeable material. Do not use this product for any over the top broadcast spray in ornamentals. Exercise care to avoid contact of spray, drift or mist with foliage or green bark of established ornamental species.

Site Preparation

This product may be used prior to planting any ornamental, nursery or Christmas tree species.

Greenhouse/Shadehouse

This product may be used to control weeds growing in and around greenhouses and shadehouses. Desirable vegetation must not be present during application and air circulation fans must be turned off.

Wildlife Habitat Management

This product may be used to control exotic and other undesirable vegetation in habitat management and natural areas, including rangeland and wildlife refuges. Apply to allow recovery of native plant species, prior to planting desirable native species, and for broad spectrum vegetation control. Apply spot treatments to selectively remove unwanted plants for habitat enhancement.

Wildlife Food Plots

This product may be used as a site preparation treatment to control annual and perennial weeds prior to planting wildlife food plots. Any wildlife food species may be planted after applying this product, or native species may be allowed to repopulate the area. If tillage is needed to prepare a seedbed, wait 7 days after application before tilling to allow translocation into underground plant parts.

Hollow Stem Injection

Apply this product to control giant knotweed (*Polygonum sachalinense*), Japanese knotweed (*Polygonum cuspidatum*), or other invasive knotweeds using individual stem treatment. Use a hand-held injection device that delivers the specified amount of this product into these hollow stem plants.

Make a hole through both sides of the stem about 6 inches above the ground, just below a node, using an awl or other pointed tool. Inject 5 mL of undiluted product directly into this hole in the hollow stem. Treat each stem of the knotweed plant.

Restrictions:

- Do not apply more than a total of 8 quarts of this product per acre for all treatments combined. At 5 mL per stem, 7.5 quarts will treat approximately 1420 stems per acre.

Parks, Recreational and Residential Areas

Use this product in parks, recreational and residential areas. Apply it with any application equipment described in this label. Use this product to trim and edge around trees, fences, paths, around buildings, sidewalks, and other objects in these areas. This product may be used for spot treatment of unwanted vegetation, eliminate unwanted weeds growing in established shrub beds or ornamental plantings, and prior to planting an area to ornamentals, flowers, turfgrass (sod or seed), or prior to laying asphalt or beginning construction projects.

All of the label instructions apply to park and recreational areas.

Railroads

All of the instructions in the Noncrop Areas and Industrial Sites and Roadside sections apply to railroads.

Bare Ground, Ballast and Shoulders, Crossings, and Spot Treatment

Use this product to maintain bare ground on railroad ballast and shoulders. Repeat applications up to the labeled rate of this product may be used as weeds emerge to maintain bare ground. Use this product to control tall growing weeds to improve line of sight at railroad crossings and reduce the need for mowing along rights-of-way.

Brush Control

Apply 3 to 8 quarts of this product per acre as a broadcast spray, using boom-type or boomless nozzles. Applications up to 80 gallons of spray solution per acre may be used. Apply a 3/4 to 1.5 percent solution of this product when using high volume spray to wet applications. Apply a 5 to 10 percent solution of this product when using low volume directed sprays for spot treatment.

Roadsides

All of the instructions in the Noncrop Areas and Industrial Sites and Railroads sections apply to roadsides.

Shoulder Treatments

Use this product on road shoulders. Apply it with boom sprayers, shielded boom sprayers, high volume off-center nozzles, OC nozzle clusters, manifold nozzle systems, hand-held equipment, and similar equipment, and under-deck mowing plus herbicide systems.

Guardrails and Other Obstacles to Mowing

Use this product to control weeds growing under guardrails and around signposts and other objects along the roadside.

Spot Treatment

Use this product as a spot treatment to control unwanted vegetation growing along roadsides.

Tank Mixes: This product may be used in tank mix combination with other herbicide products to broaden the spectrum of vegetation controlled and for residual weed control. Follow applicable use directions, precautions and limitations on the respective product labels. Use according to the most restrictive precautionary statements for each product in the mixture. Any specified rate of this product may be used in a tank mix.

Chemical Mowing

Perennials: This product suppresses perennial grasses listed in this section to serve as a substitute for mowing. Use 4.5 fl oz of this product per acre when treating Kentucky bluegrass, tall fescue, fine fescue, orchardgrass, or quackgrass. Apply 12 fl oz of this product per acre when treating bermudagrass. Apply 4.5 to 8 fl oz of this product per acre when treating bahiagrass. Use the higher labeled rates when grass is under heat stress. Apply 3 pints of this product per acre when treating torpedograss or paragrass. Apply treatments in 10 to 20 gallons of spray solution per acre.

Annuals: For growth suppression of some annual grasses, including annual ryegrass, wild barley and wild oats growing in coarse turfgrass on roadsides or other industrial areas, apply 3 to 3.75 fl oz of this product in 10 to 40 gallons of spray solution per acre. Apply when annual grasses are actively growing and before the seedheads are in the boot stage of development. Treatments may cause injury to the desired grasses.

Release of Dormant Bermudagrass or Bahiagrass

Apply 6 to 48 fl oz of this product per acre in 10 to 40 gallons of water per acre. Use only in areas where bermudagrass or bahiagrass are desirable groundcovers and where some temporary injury or discoloration can be tolerated. Treatments of more than 12 fl oz per acre may result in injury or delayed greenup in highly maintained areas, including golf courses and lawns.

For best results on winter annuals, treat when weeds are in an early growth stage (less than 6 inches in height) after most have germinated. For best results on tall fescue, treat when fescue is in or beyond the 4- to 6-leaf stage.

Tank Mixes: This product may be used in tank mix combination with other herbicide products to broaden the spectrum of vegetation controlled and for residual weed control. When tank mixing, read and follow all applicable use directions, precautions, and limitation on the respective product labels. Use according to the most restrictive precautionary statements for each product in the mixture. Any specified rate of this product may be used in a tank mix.

Actively Growing Bermudagrass

Use this product to control or partially control many annual and perennial weeds for effective release of actively growing bermudagrass. Use only in areas where some temporary injury or discoloration can be tolerated. Use only on well-established bermudagrass. Bermudagrass injury may result from the treatment, but regrowth will occur under moist conditions. Repeat applications of the tank mix in the same season are not recommended because severe injury may occur.

Apply up to 2.25 pints of this product in 10 to 40 gallons of spray solution per acre. Use the lower rate when treating annual weeds less than

6 inches in height (or runner length). Use the higher labeled rate as weeds increase in size or as they approach flower or seedhead formation.

Actively Growing Bahiagrass

For suppression of vegetable growth and seedhead inhibition of bahiagrass for approximately 45 days, apply 4.5 fl oz of this product in 10 to 40 gallons of water per acre. Apply one to two weeks after full greenup or after mowing to a uniform height of 3 to 4 inches. Make this application prior to seedhead emergence. For suppression up to 120 days, apply 3 fl oz of this product per acre, followed by an application of 1.5 to 3 fl oz per acre about 45 days later. Make no more than two applications per year.

Tank Mixes: This product may be used in tank mix combination with other herbicide products to broaden the spectrum of vegetation controlled and for residual weed control. When tank mixing, read and follow all applicable use directions, precautions, and limitation on the respective product labels. Use according to the most restrictive precautionary statements for each product in the mixture. Any specified rate of this product may be used in a tank mix.

Utility Sites

Use this product for control of brush, tree, and weed control and side trimming in areas including electrical power, pipeline and telephone rights-of-ways, and other sites associated with these rights-of-ways including substations, roadsides, and railroads. This product may be applied with any application equipment or method described on this label unless specifically prohibited.

Tank Mixes: This product may be used in tank mix combination with other herbicide products to broaden the spectrum of vegetation controlled and for residual weed control. When tank mixing, read and follow all applicable use directions, precautions, and limitation on the respective product labels. Use according to the most restrictive precautionary statements for each product in the mixture. Any specified rate of this product may be used in a tank mix.

Rangelands

Use this product to control or suppress many annual weeds growing in perennial cool and warm season grass rangelands. Preventing weed seed production is critical to the successful control of annual grassy weeds invading these perennial grass sites. Eliminate most of the viable seeds with follow up applications in sequential years. Delay grazing of treated areas to encourage growth of desirable perennials. Allowing desirable perennials to flower and reseed in the treated area will encourage successful transition.

Bromus: Use this product to control or suppress downy brome/cheatgrass (*Bromus tectorum*), Japanese brome (*Bromus japonicus*), soft chess (*Bromus mollis*), cheat (*Bromus secalinus*), cereal rye, and jointed goatgrass. Apply 6 to 12 fl oz of this product per acre as a broadcast treatment.

For best results, coincide treatments with early seedhead emergence of the most mature plants. Delaying the application until this growth stage maximizes the emergence of other weedy grass flushes. Make applications to the same site each year until seed banks are depleted and the desirable perennial grasses become established on the site.

Medusahead: Apply 12 fl oz of this product per acre to control or suppress medusahead at the 3-leaf stage when plants are actively growing. Delaying applications beyond this stage results in reduced or unacceptable control. Repeat applications in subsequent years to eliminate the seed bank before reestablishing desirable perennial grasses. Apply in the fall or spring.

Apply by ground or air. Make aerial applications for these uses with fixed wing or helicopter equipment. For aerial applications, apply in 2 to 10 gallons of water per acre. For ground applications, apply in at least 10 to 20 gallons of water per acre.

Spot Treatment and Wiper Application

Apply this product in rangeland, pastures, or industrial sites as a spot treatment or over the top of desirable grasses using wiper applicators to control tall weeds. See Wiper Application section for specific instructions. Make repeat applications up to the labeled rate in the same area at 30-day intervals.

The entire site or any portion of it may be treated when using 2.25 quarts or less of this product per acre for spot treatments or wiper applications. No more than 10 percent of the total site may be treated at any one time when using more than 2.25 quarts of this product per acre for spot treatments or wiper applications. To achieve maximum performance, remove domestic livestock before application and wait 7 days after application before grazing livestock or harvesting for feed.

Pastures

Type of Pastures: Bahiagrass, bermudagrass, bluegrass, brome, fescue, orchardgrass, ryegrass, timothy, wheatgrass, alfalfa, clover

Spot Treatment and Wiper Application

This product may be applied as a spot treatment or as a wiper application. Make applications in the same area at 30-day intervals. See Wiper Application section for specific instructions.

Precautions:

- For spot treatment and wiper applications, the entire field or any portion of it may be treated when using a rate of 2.25 quarts or less per acre.
- To achieve maximum performance, remove domestic livestock before application and wait 14 days after application before grazing livestock or harvesting.

Restrictions:

- Do not treat more than 10 percent of any acre at one time if applying more than 2.25 quarts per acre as a spot treatment or wiper application.

Preplant, Preemergence, and Pasture Renovation

Apply this product prior to planting or emergence of forage grasses and legumes. In addition, this product may be used to control perennial pasture species listed on this label prior to re-planting.

Precautions:

- If the application rates total 2.25 quarts or less per acre, there is no waiting period between treatment and feeding or livestock grazing is required.
- If the application rates total more than 2.25 quarts per acre, remove domestic livestock before application and wait eight weeks after application before grazing or harvesting.

Restrictions:

- Crops listed for treatment in this label may be planted into the treated area at any time. Wait 30 days between application and planting for all other crops.

Bamboo

Use this product on roadside rights-of way to control or suppress bamboo. Use the higher rate in the rate range for dense stands and larger plants. Mow or cut bamboo and allow it to resprout to have sufficient foliage in order for the spray solution to completely cover the foliage. Optimum control or suppression of bamboo is achieved when this product is applied between August and October (prior to frost). One application of this product plus a surfactant will not eradicate bamboo. Several mowings and applications are required to completely control bamboo.

Apply the specified rate plus a surfactant (1/4 to 1/2% v/v), such as a nonionic surfactant containing 80% active ingredient or more. Using this product without a surfactant results in reduced performance.

Application Method	Rate	Spray Volume (gal/acre)
ground broadcast	1.5 – 7.5 qt/acre	10 - 60
handgun spray to wet	0.75 – 2%	spray to wet
handgun or backpack low volume directed spray	4 – 10%	spray to cover

Restrictions:

- Do not apply more than a total of 8 quarts of this product per acre per year.

Annual Weeds, Perennial Weeds, and Woody Brush and Trees

Annual Weeds

Apply 24 fl oz of this product per acre if weeds are less than 6 inches in height or runner length. Use 1.25 to 3 quarts of this product per acre if weeds are more than 6 inches in height or runner length or when weeds are growing under stressed conditions. Use a higher rate in the rate range for tough to control species regardless of the size of the weed at the time of application. Treat tough to control weeds when they are relatively small. Tank mix this product with only those products that are labeled for application at the target site. Refer to the label of the tank mix partner for use sites and application rates.

Apply a 0.4 percent solution of this product as a spray to wet application to weeds less than 6 inches in height or runner length. Use a 0.7 to 1.5 percent solution for annual weeds more than 6 inches tall or for smaller weeds growing under stressed conditions. Use the higher concentration for tough to control species or for weeds more than 24 inches tall. Apply prior to seedhead formation in grass or bud formation in broadleaf weeds.

Use a 4 to 7 percent solution of this product for low volume directed spray applications. Spray coverage should be uniform with at least

50 percent of the foliage contacted. For best results, cover the top one-half of the plant. To ensure adequate spray coverage, spray both sides of large or tall weeds when foliage is thick and dense or where there are multiple sprouts.

Common Name

anoda, spurred balsamapple¹
barley
barnyardgrass
bassia, fivehook
bittercress
bluegrass, annual
bluegrass, bulbous
brome, downy/cheatgrass
brome, Japanese
buttercup
Carolina foxtail
Carolina geranium
castorbean
chamomile, mayweed
cheat
chervil
chickweed
cocklebur, common
coreopsis, plains
corn, volunteer
crabgrass
dwarf/dandelion, Virginia
eastern manna grass
eclipta
falsedandelion
falseflax, smallseed
fiddleneck
field pennycress
fleabane, annual
fleabane, hairy
fleabane, rough
Florida pusley
foxtail
goatgrass, jointed
goosegrass
groundsel, common
henbit
horseweed/marestail
itchgrass
johnsongrass
junglerice
knotweed
kochia²
lambquarters, common
mallow, little
medusahead
morningglory
mustard, blue
mustard, tumble
mustard, wild
oats, wild
panicum, fall
pigweed, redroot
pigweed, smooth
prickly lettuce
puncturevine
purslane, common
ragweed, common
ragweed, giant
rocket, London
Russian-thistle
rye, cereal
ryegrass, Italian³
sandbur, field
sesbania, hemp
shattercane
shepherd's-purse
sicklepod
signalgrass, broadleaf
smartweed, Pennsylvania
sowthistle, annual
Spanishneedles³
speedwell, corn
speedwell, purslane
sprangletop
spurge, annual
spurge, prostrate
spurge, spotted
spurry, umbrella
stinkgrass
sunflower, common
tansymustard, pinnate
teaweed/sida, prickly
Texas panicum

Scientific Name

Anoda cristata
Momordica charantia
Hordeum vulgare
Echinochloa crus-galli
Bassia hyssopifolia
Cardamine spp.
Poa annua
Poa bulbosa
Bromus tectorum
Bromus japonicus
Ranunculus spp.
Alopecurus carolinianus
Geranium carolinianum
Ricinus communis
Anthemis cotula
Bromus secalinus
Anthriscus cerefolium
Cerastium vulgatum
Xanthium strumarium
Coreopsis tinctoria
Zea mays
Digitaria spp.
Krigia virginica
Glyceria spp.
Eclipta prostrata
Pyrrhopappus carolinianus
Camelina microcarpa
Amsinckia spp.
Thlaspi arvense
Erigeron annuus
Conyza bonariensis
Erigeron strigosus
Richardia scabra
Setaria spp.
Aegilops cylindrica
Eleusine indica
Senecio vulgaris
Lamium amplexicaule
Conyza canadensis
Rottboellia cochinchinensis
Sorghum halepense
Echinochloa colona
Polygonum spp.
Kochia scoparia
Chenopodium album
Malva parviflora
Taeniatherum caput-medusae
Ipomoea spp.
Chorispora tenella
Sisymbrium altissimum
Sinapis arvensis
Avena fatua
Panicum dichotomiflorum
Amaranthus retroflexus
Amaranthus hybridus
Lactuca serriola
Tribulus terrestris
Portulaca oleracea
Ambrosia artemisiifolia
Ambrosia trifida
Sisymbrium irio
Salsola tragus
Secale cereale
Lolium perenne
Cenchrus spinifex
Sesbania herbacea
Sorghum bicolor
Capsella bursa-pastoris
Senna obtusifolia
Urochloa platyphylla
Polygonum pennsylvanicum
Sonchus oleraceus
Bidens bipinnata
Veronica arvensis
Veronica peregrina
Leptochloa spp.
Chamaesyce spp.
Chamaesyce humistrata
Chamaesyce maculata
Holosteum umbellatum
Eragrostis cilianensis
Hellianthus annuus
Descurainia pinnata
Sida spinosa
Panicum spp.

Common Name (Cont.)

velvetleaf
Virginia pepperweed
wheat
witchgrass
woolly cupgrass
yellow rocket

¹Apply with hand-held equipment only.

²Do not treat kochia in the button stage.

³Apply 3 pints of product per acre.

Perennial Weeds

Best results are obtained when perennial weeds are treated after they reach the reproductive stage of growth (seedhead initiation in grasses and bud formation in broadleaves). Best results are obtained when non-flowering plants are treated when they reach a mature stage of growth. In many situations, applications are required prior to these growth stages. Under these conditions, use a higher rate in the rate range.

When using spray to wet treatments with hand-held equipment, ensure thorough coverage of the plant. For best results, use a 1.5 percent solution on harder to control perennials including bermudagrass, dock, field bindweed, hemp dogbane, milkweed and Canada thistle.

Use a 4 to 7 percent solution of this product in low volume directed spray applications. Spray coverage should be uniform with at least 50 percent of the foliage contacted. For best results, cover the top one-half of the plant. To ensure adequate spray coverage, spray both sides of large or tall weeds when foliage is thick and dense or where there are multiple sprouts.

Allow 7 days or more after application before tillage.

Common Name

alfalfa
alligatorweed¹
anise/fennel
artichoke, Jerusalem
bahiagrass
beachgrass, European
bentgrass
bermudagrass
bindweed, field
bluegrass, Kentucky
blueweed, Texas
brackenfern
brome, smooth
bursage, woollyleaf
canarygrass, reed
cattail
clover, red
clover, white
cogongrass
cordgrass
cutgrass, giant¹
dallisgrass
dandelion
dock, curly
dogbane, hemp
fescue
fescue, tall
German ivy
guineagrass
horsenettle
horseradish
iceplant, crystalline
johnsongrass-
kikuyugrass
knapweed, Russian
lantana, largeleaf
lespedeza, common
lespedeza, sericea-
loosestrife, purple
lotus, American
maidencane
milkweed
muhly, wirestem
mullein, common
napiagrass
nightshade, silverleaf
nutsedge, purple
nutsedge, yellow
orchardgrass
pampasgrass
paragrass
phragmites²
poison-hemlock
quackgrass
redvine
reed, giant
ryegrass, perennial

Scientific Name

Abutilon theophrasti
Lepidium virginicum
Triticum aestivum
Panicum capillare
Eriochloa villosa
Barbarea vulgaris

Medicago sativa
Alternanthera philoxeroides
Foeniculum vulgare
Helianthus tuberosus
Paspalum notatum
Ammophila arenaria
Agrostis spp.
Cynodon dactylon
Convolvulus arvensis
Poa pratensis
Helianthus ciliaris
Pteridium aquilinum
Bromus inermis
Ambrosia grayi
Phalaris arundinacea
Typha spp.
Trifolium pratense
Trifolium repens
Imperata cylindrica
Spartina spp.
Zizaniopsis miliacea
Paspalum dilatatum
Taraxacum officinale
Rumex crispus
Apocynum cannabinum
Festuca spp.
Lolium arundinaceum
Senecio mikanioides
Urochloa maxima
Solanum carolinense
Armoracia rusticana
Mesembryanthemum crystallinum
Sorghum halepense
Pennisetum clandestinum
Acroptilon repens
Lantana camara
Kummerowia striata
Lespedeza cuneata
Lythrum salicaria
Nelumbo lutea
Panicum hemitomon
Asclepias spp.
Muhlenbergia frondosa
Verbascum thapsus
Pennisetum purpureum
Solanum elaeagnifolium
Cyperus rotundus
Cyperus esculentus
Dactylis glomerata
Cortaderia selloana
Urochloa mutica
Phragmites spp.
Conium maculatum
Elymus repens
Brunnichia ovata
Arundo donax
Lolium perenne

Common Name (Cont.)

smartweed, swamp
sowthistle, perennial
spatterdock
starthistle, yellow-
sweet potato, wild¹
thistle, artichoke
thistle, Canada
timothy
torpedograss¹
trumpetcreeper
tules, common
vaseygrass
velvetgrass
water fern³
waterhyacinth
waterlettuce
waterprimrose
wheatgrass, western

¹ Partial control.

² Partial control in southeastern states.

³ Not for use in California

Scientific Name

Polygonum amphibium
Sonchus arvensis
Nuphar lutea
Centaurea solstitialis
Ipomoea pandurata
Cynara cardunculus
Cirsium arvense
Phleum pratense
Panicum repens
Campsis radicans
Scirpus acutus
Paspalum urvillei
Holcus spp.
Salvinia spp.
Eichornia crassipes
Pistia stratiotes
Ludwigia spp.
Pascopyrum smithii

Woody Brush and Trees

Apply this product after full leaf expansion unless otherwise directed. Use the higher labeled rate for larger plants and/or dense areas of growth. On vines, use the higher labeled rate for plants that have reached the woody stage of growth. Best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when applications are made in the spring or early summer when brush species are at high moisture content and are flowering.

Ensure thorough coverage when using hand-held equipment.

See Low Volume Directed Spray Application section of label. Spray coverage should be uniform with at least 50 percent of the foliage contacted. For best results, cover the top half to 2/3 of the plant foliage. Spray both sides of large or tall woody brush and trees to ensure adequate spray coverage when foliage is thick and dense or where there are multiple sprouts. Symptoms may not appear prior to frost or senescence with fall treatments.

Allow seven days or more after application before tillage, mowing or removal. Repeat treatments up to the labeled rate may be necessary to control plants regenerating from underground parts or seed. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Reduced performance may result if fall treatments are made following a frost.

Note: If brush has been mowed or tilled, or trees have been cut, do not treat until regrowth has reached the specified stage of growth.

This product will control, partially control, or suppress the following woody brush and trees.

Common Name

alder
ash¹
aspen, quaking
bearclover, beararm
beach
birch
bittercherry
blackberry
blackgum
blue gum, Tasmanian
brackenfern
broom, French
broom, Scotch
buckwheat, California¹
cascara¹
catclaw-vine¹
ceanothus
chamise
cherry
cherry, black
cherry, pin
copperleaf, hophornbeam
coyotebrush
deer vetch
dewberry, southern
dogwood
elderberry
elm¹
gorse
hasardia¹
hawthorn
hazel
hickory
holly, Florida

Scientific Name

Alnus spp.
Fraxinus spp.
Populus tremuloides
Ceanothus prostratus
Fagus spp.
Betula spp.
Prunus emarginata
Rubus spp.
Nyssa sylvatica
Eucalyptus globulus
Pteridium aquilinum
Genista monspessulana
Cytisus scoparius
Eriogonum fasciculatum
Frangula purshiana
Macfadyena unguis-cati
Ceanothus spp.
Adenostoma fasciculatum
Prunus spp.
Prunus serotina
Prunus pensylvanica
Acalypha ostryifolia
Baccharis pilularis
Lotus unifoliolatus
Rubus trivialis
Cornus spp.
Sambucus nigra
Ulmus spp.
Ulex europaeus
Haplopappus squamosus
Crataegus spp.
Corylus spp.
Carya spp.
Schinus terebinthifolius

Common Name (Cont.)

honeysuckle
hornbeam, American
kudzu
locust, black¹
madrone, Pacific
manzanita
maple
maple, red¹
maple, sugar
maple, vine¹
monkeyflower¹
oak
oak, black¹
oak, pin
oak, post
oak, red
oak, southern red
oak, white¹
peppertree, Brazilian
persimmon¹
pine
poison-ivy, eastern
poison-oak
poison-sumac¹
prunus
raspberry
redbud, eastern-
rose, multiflora-
Russian-olive
sage, black, white
sagebrush, California
salmonberry
saltcedar¹
saltbush, sea myrtle
sassafras-
sourwood¹
sumac, smooth¹
sumac, dwarf¹
sweetgum-
swordfern¹
tallowtree, Chinese-
oak, tanbark resprouts
thimbleberry, western
tobacco, tree¹
trumpetcreeper-
Virginia-creeper¹
waxmyrtle, southern¹
willow-
yellow-poplar¹
yerba santa
¹Partial control

Scientific Name

Lonicera spp.
Carpinus caroliniana
Pueraria montana
Robinia pseudoacacia
Arbutus menziesii
Arctostaphylos spp.
Acer spp.
Acer rubrum
Acer saccharum
Acer circinatum
Mimulus guttatus
Quercus spp.
Quercus kelloggia
Quercus palustris
Quercus stellata
Quercus rubra
Quercus falcata
Quercus alba
Schinus terebinthifolius
Diospyros spp.
Pknus spp.
Toxicodendron radicans
Toxicodendron spp.
Toxicodendron vernix
Prunus spp.
Rubus spp.
Cercis canadensis
Rosa multiflora
Elaeagnus angustifolia
Salvia spp.
Artemisia californica
Rubus spectabilis
Tamarix ramosissima
Baccharis halimifolia
Sassafras albidum
Oxydendrum arboreum
Rhus glabra
Rhus copallinum
Liquidambar styraciflua
Polystichum munitum
Triadica sebifera
Lithocarpus densiflorus
Rubus parviflorus
Nicotiana glauca
Campsis radicans
Parthenocissus quinquefolia
Myrica cerifera
Salix spp.
Liriodendron tulipifera
Eriodictyon californicum

unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Dow AgroSciences or the seller. To the extent permitted by law, all such risks shall be assumed by buyer.

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- (2) Replacement of amount of product used.

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Revisions

1. Updated the trademark line to read, "®™ Trademarks of Dow AgroSciences, DuPont or Pioneer and their affiliated companies or respective owners"
2. Add "Caution" to the Precautionary Statements and combine the statements into one paragraph.
3. Under Rainfastness – revised sentence to read, "Heavy rainfall soon... repeat application up to the labeled rate may be required."
4. Revised 2nd paragraph of Directed Sprays to read, "Injury to larch may occur especially where spray patterns overlap or higher labeled rates of this..."
5. Removed rates and application method from table of Tank Mix Partners for Forestry Sites.
6. Broadcast Applications Outside Areas of Southeastern United States revised to read, "...overlap or the higher labeled rate is applied."
7. Chemical Mowing revised sentence to read, "Repeat applications of the tank mix in the same season are not recommended because severe injury may occur."
8. Add missing table for Hand Held Sprayers to sub-label B
9. Add following statements to Wiper Applications: "Rope or Sponge Wick applications: Use solutions of 33 to 75 percent of this product in water." "Panel Applications: Use solutions of 33 to 100 percent of this product in water."
10. Correct typo under "Hollow Stem Injection" "Do not apply more than a total of 7.5 quarts of this product..."
11. Update Mode of Action banner to reflect provisions in PR Notice 2017-01.

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