

# Aquatic Plant Management

NOTE: Missing or incomplete fields are highlighted at the bottom of each page. You may save, close and return to your draft permit as often as necessary to complete your application. If there are no updates in 90 days, your draft is deleted

This Application has been Signed and Submitted by: i:05.t|mywisconsin id|hdhiii@schmidtsaquatic.com signed on 2026-02-26T12:53:55

Site or Project Name:

Archibald Lake 2026

The permit application will be saved automatically with this name

Activity:

Chemical Control Application-Lake, River, Pond

Eligibility:

(All questions must be no for it to be considered a private pond.)

Does the waterbody have:

- More than one property owner?  Yes  No
- Uncontrolled surface water discharge?  Yes  No
- Public access?  Yes  No

## 3200-004 Chemical Aquatic Control Application - Lake, River, Pond

NOTE: To be considered a private pond, a waterbody must meet all of the following requirements:

1. Confined to one property owner.
2. The pond has no uncontrolled surface water discharge.
3. No public access.

Upon submittal of your permit application, a **non-refundable \$20 permit processing fee will be charged**. Additional acreage fees will be refunded if the permit request is denied or if no treatment occurs.

## 3200-004 Chemical Aquatic Plant Control Application

- Annually complete all pages on Form 3200-004 for chemical plant management applications. Complete form 3200-004a for large scale treatments(exceeds 10.0 acres in size or 10% of the area of the water body that is 10 feet or less in depth) as required by NR107.04(3).
  - Form 3200-004 is completed electronically through this system.
  - Form 3200-004a must be completed outside the system and uploaded to the attachments section. Please refer to this link for a copy of this form: <http://dnr.wi.gov/files/pdf/forms/3200/3200-004A.pdf>
- Attach a map that shows the treatment location(s), treatment dimensions and riparian landowners. If requesting WPDES coverage, attach a water body map that shows surface outflow and receiving waters.
- For a large-scale treatment, attach evidence that a public notice has been published in a regional / local newspaper and if required that a public informational meeting has been conducted as defined in NR107.04(3).
- Pay fee online.
- Sign and Submit form.
- A signed permit application certifies to the Department that a copy of the application has been provided to any affected property owner's association/district and to landowners adjacent to treatment area.

## Contact Information

### Applicant Information

**Organization** Archibald Lake Association

**Last Name:** Schwebke

**First Name:** Ken

**Mailing Address:** 16694 Archibald Parkway

**City:** Townsend

**State:** WI

**Zip Code:** 54165

**Email:**

**Phone Number:**

(xxx-xxx-xxxx)

**Alternative Phone Number:**

(xxx-xxx-xxxx)

### Waterbody Address

**Last Name:**

**First Name:**

**Street Address:** 16694 Archibald Parkway

**City:** Townsend

**State:** WI

**Zip Code:** 54165

**Email:**

**Phone Number:**

(xxx-xxx-xxxx)

**Alternative Phone Number:**

(xxx-xxx-xxxx)

### Applicator

**Name of Applicator Firm:** Schmidt's Aquatic, LLC

**Applicator Certification #:** 000977

**Business Location License #:** 534304

**Restricted Use Pesticide #:**

**Address:** 7470 Sherman Rd

**City:** Bancroft

**State:** WI

**Zip:** 54921

**Email:** hdhiii@schmidtsaquatic.com

**Phone Number:** 920-980-9190  
(xxx-xxx-xxxx)

## Adjacent Riparian Property Owners

**NOTE: Phone and email address will not be publicly viewable.**

Uploaded riparian owners to attachment tab  Riparian Owners Information is not applicable for this application

Name

Address

Phone

Email Address



## Site Information - Complete

### Waterbody Containing Control Area(s)

**Waterbody Property Owners Association  
or Waterbody District Representative :**

Archibald Lake Association

None

**Water Body or Wetland Name:**

Archibald Lake

**Primary County:**

Oconto

**Latitude:**

45.2829925

**Longitude:**

-88.586644

**Section:**

02

**Township:**

32

**Range:**

15

**Direction:**

E  W

**Waterbody Surface Area:**

395 acres

**Estimated Surface area that is 10ft or less**

100 acres

### Proposed Control Area(s)

Area(s) Proposed for Control:

Site Name (Optional)	Treatment Length	Treatment Width	Estimated Acreage	Average Depth	Calculated Volume
0.33	0 ft. x	0 ft.	$\div 43,560 \text{ ft}^2 =$ 0.33 ac	5.00 ft =	1.65 ac-ft
0.08	0 ft. x	0 ft.	$\div 43,560 \text{ ft}^2 =$ 0.08 ac	5.00 ft =	0.40 ac-ft
0.23	0 ft. x	0 ft.	$\div 43,560 \text{ ft}^2 =$ 0.23 ac	5.00 ft =	1.15 ac-ft
0.34	0 ft. x	0 ft.	$\div 43,560 \text{ ft}^2 =$ 0.34 ac	5.00 ft =	1.70 ac-ft
0.05	0 ft. x	0 ft.	$\div 43,560 \text{ ft}^2 =$ 0.05 ac	5.00 ft =	0.25 ac-ft
Estimated Acreage Grand Total			1.03 ac	Calculated Volume Grand Total	5.15 ac-ft

Is the area with in or adjacent to a sensitive area designated by the Department of Natural Resources. [More Information](#)

Yes  No

Does the proposed activity occur within a waterbody (i.e., private pond, lake, wetland, river, etc.) located within tribal reservation boundaries?

Yes  No

Please Consult the Department's [Native American Lands GIS layer](#) for information on tribal boundaries. If uncertain, please contact [your local APM Coordinator](#) for assistance.

**If the estimated acreage is greater than 10 acres, or is greater than 10 percent of the estimated area 10 feet or less in depth , the application is c**

- Worksheet for Large-scale Chemical Aquatic Plant Treatment (Form 3200-4A): <https://apps.dnr.wi.gov/doclink/forms/3200-004a.pdf>
- Evidence that [NR107.04\(3\)\(f\)](#) public notice requirements have been completed. See [ePermitting Guidebook](#) for examples of acceptable forms. Applications that do not meet these requirements will be considered incomplete and placed on hold.

**Chemical Aquatic Plant Control Information - Lake, River, Pond Form 3200-004 (R 2/17)**

**Notice:** Use of this form is required by the Department for any application filed pursuant to s. 281.17(2), Wis. Stats., and Chapters NR 107, 200 and 205, Wis. Adm. Code. This permit application is required to request coverage for pollutant discharge into waters of the state. Personally identifiable information on this form may be provided to requesters to the extent required by Wisconsin's Open Records Law [ss. 19.31-19.39, Wis. Stats.].

**Treatment Type:**

- Lake  Pond  Wetland  Marina  Other

Has a management plan been provided to the DNR? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Don't Know	If Yes, date approved of most current copy 11/29/2023	Link to Approved Plan: <input type="text"/> <input checked="" type="checkbox"/> Uploaded Plan copy as an Attachment
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Does the proposed plant removal agree with the approved plan?  Yes  No  
If NO, explain, Attach additional sheets if necessary.

**Goal of Aquatic Plant Control:**

- Maintain navigation channel
- Maintain boat landing and carry in access
- Improve fish habitat
- Maintain swimming area
- Control of invasive exotics
- Other

**Nuisance Caused By:**

- Algae
- Emergent water plants (majority of leaves & stems growing above water surface, e.g. cattail, bulrushes)
- Floating water plants (majority of leaves floating on water surface, e.g., water lilies, duckweed)
- Submerged water plants (leaves & stems below surface, flowering parts may be exposed: milfoil, coontail)
- Other

**List Target Plants**

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Algae                   | <input checked="" type="checkbox"/> Flowering Rush | <input type="checkbox"/> Purple Loosestrife    |
| <input type="checkbox"/> Common/Glossy Buckthorn | <input type="checkbox"/> Hybrid Cattail            | <input type="checkbox"/> Reed Canary Grass     |
| <input type="checkbox"/> Coontail                | <input type="checkbox"/> Hybrid Watermilfoil       | <input type="checkbox"/> Reed Manna Grass      |
| <input type="checkbox"/> Curly-Leaf Pondweed     | <input type="checkbox"/> Japanese Knotweed         | <input type="checkbox"/> Starry Stonewort      |
| <input type="checkbox"/> Duckweed                | <input type="checkbox"/> Naiad                     | <input type="checkbox"/> Yellow Floating Heart |
| <input type="checkbox"/> Elodea                  | <input type="checkbox"/> Narrow-Leaf Cattail       | <input type="checkbox"/> Yellow Iris           |
| <input type="checkbox"/> Eurasian Watermilfoil   | <input type="checkbox"/> Phragmites                | <input type="checkbox"/> Pondweed              |

**Other Target Plants:**

Note: Different plants require different chemicals for effective treatment. Do not purchase chemical before identifying plants.

# Chemical Control

## Full Trade Name of Proposed Chemical(s)

- |  |  |  |   |
|--|--|--|---|
| <input type="checkbox"/> Agristar 2,4-D Amine    | <input type="checkbox"/> Clipper               | <input type="checkbox"/> K-Tea             | <input type="checkbox"/> SCI-62             |
| <input type="checkbox"/> Algimycin PWF           | <input type="checkbox"/> Clipper SC            | <input type="checkbox"/> Littora           | <input type="checkbox"/> Sculpin G          |
| <input type="checkbox"/> Alligare 2,4-D          | <input type="checkbox"/> Current               | <input type="checkbox"/> Milestone         | <input type="checkbox"/> SeClear            |
| <input type="checkbox"/> Alligare Argos          | <input type="checkbox"/> Cutrine-Plus          | <input type="checkbox"/> Nautique          | <input type="checkbox"/> SeClear G          |
| <input type="checkbox"/> Alligare Diquat         | <input type="checkbox"/> Cutrine-Plus Granular | <input type="checkbox"/> Navigate          | <input type="checkbox"/> Shoreklear-Plus    |
| <input type="checkbox"/> Alligare Ecomazapyr     | <input type="checkbox"/> Cutrine-Ultra         | <input type="checkbox"/> Navitrol          | <input type="checkbox"/> Shredder Amine     |
| <input type="checkbox"/> Alligare Glyphosate 5.4 | <input type="checkbox"/> DMA 4 IVM             | <input type="checkbox"/> Navitrol DPF      | <input type="checkbox"/> Sonar AS           |
| <input type="checkbox"/> Aqua Neat               | <input type="checkbox"/> Earthtec              | <input type="checkbox"/> Phycomycin SCP    | <input type="checkbox"/> Sonar Genesis      |
| <input type="checkbox"/> Aqua Star               | <input type="checkbox"/> Element 3A            | <input type="checkbox"/> Polaris           | <input type="checkbox"/> Sonar H4C          |
| <input type="checkbox"/> AquaPro                 | <input type="checkbox"/> Flumioxazin 51% WDG   | <input type="checkbox"/> Polaris AC        | <input type="checkbox"/> Sonar PR           |
| <input type="checkbox"/> Aquashade               | <input type="checkbox"/> Formula F-30          | <input type="checkbox"/> Pond-Klear        | <input type="checkbox"/> Sonar Q            |
| <input type="checkbox"/> Aquashadow              | <input type="checkbox"/> Garlon 3A             | <input type="checkbox"/> ProcellaCOR EC    | <input type="checkbox"/> Sonar RTU          |
| <input type="checkbox"/> Aquastrike              | <input type="checkbox"/> Green Clean           | <input type="checkbox"/> Refuge            | <input type="checkbox"/> Sonar SRP          |
| <input type="checkbox"/> Aquathol K              | <input type="checkbox"/> Habitat               | <input type="checkbox"/> Renovate 3        | <input type="checkbox"/> SonarOne           |
| <input type="checkbox"/> Aquathol Super K        | <input type="checkbox"/> Harpoon               | <input type="checkbox"/> Renovate LZR      | <input type="checkbox"/> Stingray           |
| <input type="checkbox"/> Avast! SC               | <input type="checkbox"/> Harvester             | <input type="checkbox"/> Renovate LZR Max  | <input type="checkbox"/> Symmetry NXG       |
| <input type="checkbox"/> Captain                 | <input type="checkbox"/> Havoc Amine           | <input type="checkbox"/> Renovate Max G    | <input type="checkbox"/> Touchdown Pro      |
| <input type="checkbox"/> Captain XTR             | <input type="checkbox"/> Hydrothol 191         | <input type="checkbox"/> Renovate OTF      | <input checked="" type="checkbox"/> Tribune |
| <input type="checkbox"/> Chinook                 | <input type="checkbox"/> Hydrothol Granular    | <input checked="" type="checkbox"/> Reward | <input type="checkbox"/> Trycera            |
| <input checked="" type="checkbox"/> Clearcast    | <input type="checkbox"/> Komeen                | <input type="checkbox"/> Rodeo             | <input type="checkbox"/> Weedar 64          |
| <input type="checkbox"/> Clearigate              | <input type="checkbox"/> Komeen Crystal        | <input type="checkbox"/> Roundup Custom    | <input type="checkbox"/> Weedestroy AM-40   |

Other Proposed Chemical(s):

Have the proposed chemicals been permitted in a prior year on the proposed site?

- All  Some  None

What were the results of the treatment?

Method of Application: Injection

Other Method of Application

NOTE: Chemical fact sheets for aquatic pesticides used in Wisconsin are available from the Department of Natural Resources upon request.

Alternatives to Chemical Control:	Feasible?	If No, Why Not?
1. Mechanical harvesting	<input type="radio"/> Yes <input checked="" type="radio"/> No	Not feasible with Flowering Rush
2. Manual removal	<input type="radio"/> Yes <input checked="" type="radio"/> No	Too much Flowering Rush to hand pull
3. Sediment screens/covers	<input type="radio"/> Yes <input checked="" type="radio"/> No	Too costly
4. Dredging	<input type="radio"/> Yes <input checked="" type="radio"/> No	Too costly
5. Waterbody drawdown	<input type="radio"/> Yes <input checked="" type="radio"/> No	N/A
6. Nutrient controls in watershed	<input type="radio"/> Yes <input checked="" type="radio"/> No	N/A
7. Other:	<input type="radio"/> Yes <input checked="" type="radio"/> No	N/A

Note: If proposed treatment involves multiple properties, consider feasibility of EACH alternative for EACH property owner.

Will surface water outflow and/or overflow be controlled to prevent chemical loss?

- Yes  No

Is the treatment area greater than 5% of surface area?

- Yes  No

## WPDES Permit Request

Is WPDES coverage being requested? Refer to

<http://dnr.wi.gov/topic/wastewater/aquaticpesticides.html> for more information

Yes - complete section VII with signature.

No

Already have WPDES

WPDES coverage not needed

## Required Attachments and Supplemental Information

### Upload Required Attachments ( 15 MB per file limit) - [Help reduce file size and trouble shoot file uploads](#)

\* indicates completion of this item is required

**Note:** To add additional attachments using the down arrow icon. To replace an existing file, use the 'Click here to attach file ' link. To remove additional items, select the item and press CNTRL Delete.

Riparian Owners

 File Attachment

[Riparian List Archibald 2026.xlsx](#)

Public Notice

 File Attachment

Large Scale  
Worksheet

 File Attachment

Site Map

 File Attachment

[Archibald 2026 FloweringRush - Map & Dosing.pdf](#)

Site Map

 File Attachment

[Archibald FloweringRush LateSummer2025 MapBook df](#)

Lake  
Management  
Plan

 File Attachment

[Archibald Oconto APMPlan Final Plan Nov29-2023.pdf](#)

Lake  
Management  
Plan

 File Attachment

[flowering-rush-final-report 2016.pdf](#)

## Fee Calculation

### Chemical Control Application

1. s. NR 107.11(1), Wis. Adm. Code, lists the conditions under which the permit fee is limited to the \$20 minimum charge.
2. s. NR 107.11(4), Wis. Adm. Code, lists the uses that are exempt from permit requirements.
3. s. NR 107.04(2), Wis. Adm. Code, provides for a refund of acreage fees if the permit is denied or if no treatment occurs.

If Proposed treatment is over 0.25, calculate acreage fee: (round up to nearest whole acre, to maximum of 50 acres) acres X \$25 per acre = \$	1.03
If proposed treatment is less than 0.25 acre, acreage fee is \$0	\$50.00
Basic Permit Fee (non-refundable)	\$20.00
Total Fee	\$70

## Payment Information

**Invoice Number:** WP-00057597

**Payment Confirmation Number:** WS2WT3013256650

**Amount Paid:** \$70

## Sign and Submit

### Applicant Responsibilities and Certification

1. The applicant has prepared a detailed map which shows the length, width and average depth of each area proposed for the control of rooted vegetation and the surface area in acres or square feet for each proposed algae treatment.
2. The applicant understands that the Department of Natural Resources may require supervision of any aquatic plant management project involving chemicals. Under s.NR 107.07 Wis. Adm. Code, supervision may include inspection of the proposed treatment area, chemicals and application equipment before, during or after treatment. The applicant is required to notify the regional office 4 working days in advance of each anticipated treatment with the date, time, location and size of treatment unless the Department waives this requirement. Do you request the Department to waive the advance notification requirement?  
 Yes  No
3. The applicant agrees to comply with all terms or conditions of this permit, if issued, as well as all provisions of Chapter NR 107, Wis. Adm. Code. The required application fee is attached.
4. The applicant will provide a copy of the current application to any affected property owners' association inland Lake District and, in the case of chemical applications for rooted aquatic plants, to all owners of property riparian or adjacent to the treatment area. The applicant has also provided a copy of the current chemical fact sheet for the chemicals proposed for use to any affected property owner's association or inland Lake District.
5. Conditions related to invasive species movement. The applicant and operator agree to the following methods required under s.NR 109.05(2), Wis. Adm. Code for controlling, transporting and disposing of aquatic plants and animals, and moving water:
  - Aquatic plants and animals shall be removed and water drained from all equipment as required by s.30.07, Wis. Stats., and ss. NR 19.055 and 40.07, Wis. Adm. Code.
  - Operator shall comply with the most recent Department-approved 'Boat, Gear, and Equipment Decontamination and Disinfection Protocol', Manual Code #9183.1, available at <http://dnr.wi.gov/topic/invasives/disinfection.html>

All portions of this permit, map and accompanying cover letter must be in possession of the chemical applicator at the time of treatment. During treatment all provisions of Chapter NR 107 107.07 and NR 107.08, Wis. Adm. Code, must be complied with, as well as the specific conditions contained in the permit cover letter.

I hereby certify that that the above information is true and correct and that copies of the application shall be provided to all affected property owners promptly and that the conditions of the permit will be adhered to. All portions of this permit, map and accompanying cover letter must be in possession of the applicant or their agent at time of plant removal. During plant removal activities, all provisions of applicable Wisconsin Administrative Rules must be complied with, as well as the specific conditions contained in the permit cover letter.

### Steps to Complete the signature process

**IMPORTANT:** All email correspondence will be sent to the address associated with your WAMS ID).

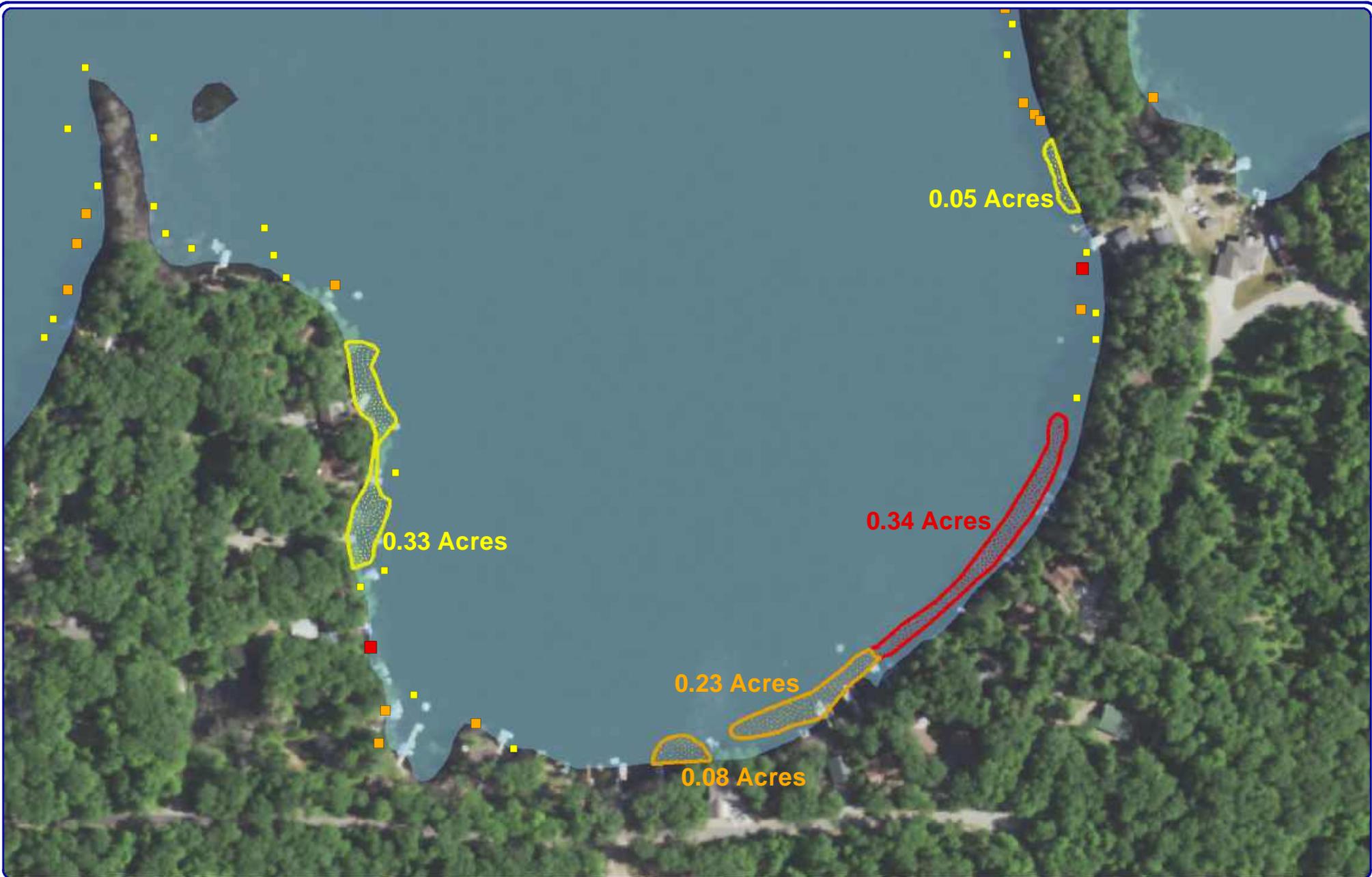
1. Read and Accept the Responsibilities and Certification
2. Press the Initiate Signature Process button
3. Open the confirmation email for a one time confirmation code and instructions to complete the signature process.

You will receive a final acknowledgement email upon completing these steps .

Check if you are signing as Agent for Applicant.

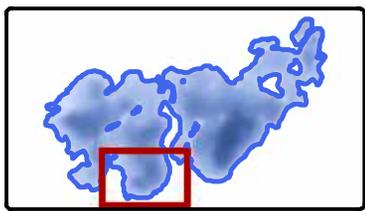
i:05.t|mywisconsin id|hdhiii@schmidtsaquatic.com

I hereby certify that the above information is true and correct and that copies of this submittal shall be provided to the appropriate parties named in the contact section and that the conditions of the permit and pesticide use will be adhered to.



**Onterra LLC**  
*Lake Management Planning*  
 815 Prosper Road  
 De Pere, WI 54115  
 920.338.8860  
 www.onterra-eco.com

**Sources:**  
 Roads and Hydro: WDNR  
 Bathymetry: Onterra, 2016  
 Orthophotography: NAIP, 2022  
 Aquatic Plants: Onterra, 2026  
**Map Date:** October 8, 2025 - E/JH



**Legend**

*Flowering Rush Survey (September 11, 2025)*

- |   |          |
|---|----------|
| <span style="color: yellow;">■</span> <20 Stems   | Sparse   |
| <span style="color: orange;">■</span> 20-30 Stems | Common   |
| <span style="color: red;">■</span> 30-40 Stems    | Abundant |

Map of  
 Archibald Lake  
 Oconto County, Wisconsin  
**2025 Late-Summer  
 Flowering Rush Survey Results**

**Archibald Lake 2026 - Clearcast (Imazamox)**

<b>Areas</b>	<b>Acres</b>	<b>Avg Dep</b>	<b>Acre Ft</b>	<b>Rate - PPB</b>	<b>Total GAL</b>
0.33	0.33	5.0	1.65	500.0	2.23
0.08	0.08	5.0	0.40	500.0	0.54
0.23	0.23	5.0	1.15	500.0	1.55
0.34	0.34	5.0	1.70	500.0	2.30
0.05	0.05	5.0	0.25	500.0	0.34
<b>Total</b>	<b>1.03</b>				<b>6.96</b>

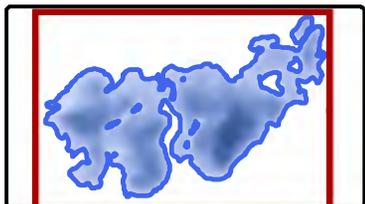
**Archibald Lake 2026 - Diquat (Reward or Tribune)**

<b>Areas</b>	<b>Acres</b>	<b>Avg Dep</b>	<b>Acre Ft</b>	<b>Rate/Gal</b>	<b>Total GAL</b>
0.33	0.33	5.0	1.65	2.0	0.82
0.08	0.08	5.0	0.40	2.0	0.20
0.23	0.23	5.0	1.15	2.0	0.57
0.34	0.34	5.0	1.70	2.0	0.85
0.05	0.05	5.0	0.25	2.0	0.15
<b>Total</b>	<b>1.03</b>				<b>2.59</b>



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**Legend**

**Flowering Rush Survey (September 11, 2025)**

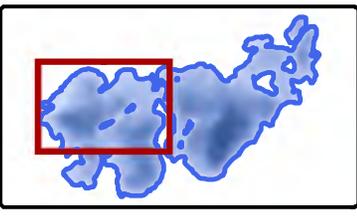
- |   |  |
|---|--|
| <span style="color: yellow;">■</span> <20 Stems   | <span style="color: yellow;">⌘</span> Sparse |
| <span style="color: orange;">■</span> 20-30 Stems | <span style="color: orange;">⌘</span> Common |
| <span style="color: red;">■</span> 30-40 Stems    | <span style="color: red;">⌘</span> Abundant  |

Map 1 of 6  
 Archibald Lake  
 Oconto County, Wisconsin  
**2025 Late-Summer  
 Flowering Rush Survey Results**



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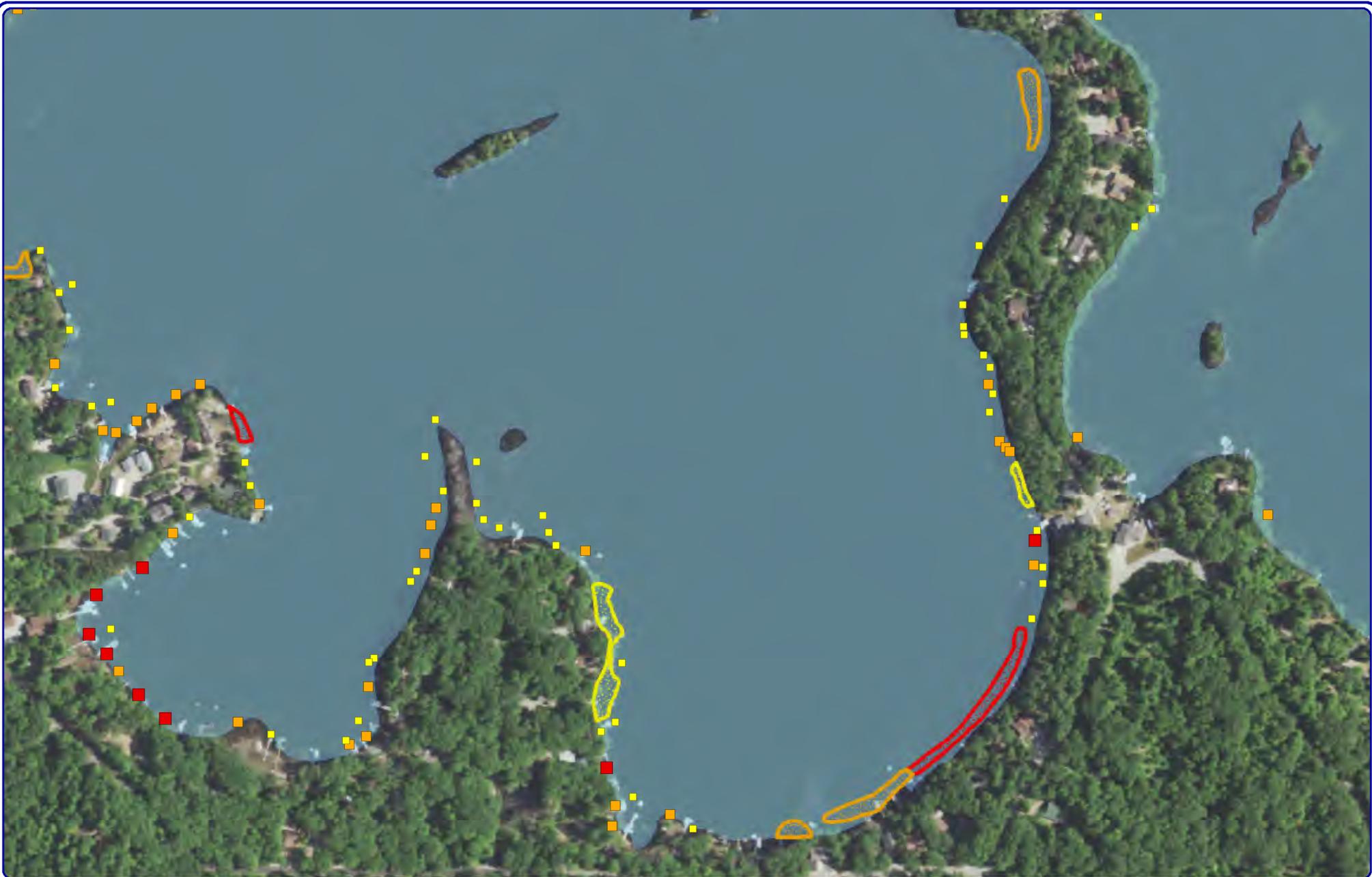


**Legend**

*Flowering Rush Survey (September 11, 2025)*

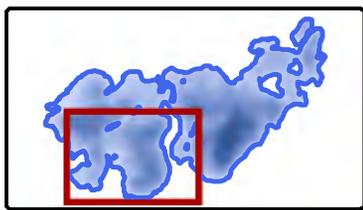
- |             |          |
|-------------|----------|
| <20 Stems   | Sparse   |
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Map 2 of 6  
 Archibald Lake  
 Oconto County, Wisconsin  
**2025 Late-Summer  
 Flowering Rush Survey Results**



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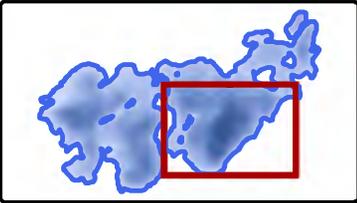
- |             |          |
|-------------|----------|
| <20 Stems   | Sparse   |
| 20-30 Stems | Common   |
| 30-40 Stems | Abundant |

Map 3 of 6  
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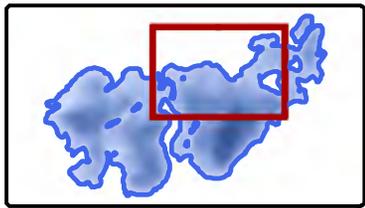
- |             |          |
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Map 4 of 6  
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**2025 Late-Summer  
 Flowering Rush Survey Results**



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#### Flowering Rush Survey (September 11, 2025)

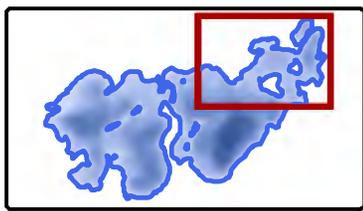
- |             |          |
|-------------|----------|
| <20 Stems   | Sparse   |
| 20-30 Stems | Common   |
| 30-40 Stems | Abundant |

Map 5 of 6  
 Archibald Lake  
 Oconto County, Wisconsin  
**2025 Late-Summer  
 Flowering Rush Survey Results**



**Onterra LLC**  
*Lake Management Planning*  
 815 Prosper Road  
 De Pere, WI 54115  
 920.338.8860  
 www.onterra-eco.com

**Sources:**  
 Roads and Hydro: WDNR  
 Bathymetry: Onterra, 2016  
 Orthophotography: NAIP, 2022  
 Aquatic Plants: Onterra, 2026  
**Map Date:** October 8, 2025 - E/JH



**Legend**

**Flowering Rush Survey (September 11, 2025)**

- |             |          |
|-------------|----------|
| <20 Stems   | Sparse   |
| 20-30 Stems | Common   |
| 30-40 Stems | Abundant |

Map 6 of 6  
 Archibald Lake  
 Oconto County, Wisconsin  
**2025 Late-Summer  
 Flowering Rush Survey Results**

# WARNING

## PESTICIDE TREATMENT AREA

THIS WATERBODY HAS BEEN CHEMICALLY TREATED FOR:

INVASIVE PLANTS  
 ALGAE

NAVIGATION/ACCESS  
 FISH REMOVAL

MOSQUITO/BLACK FLY  
 OTHER \_\_\_\_\_

PESTICIDE APPLIED

ACTIVE INGREDIENT

DATE TREATED

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WATER USE RESTRICTIONS APPLY AS FOLLOWS:

TO  THE ENTIRE WATERBODY

TO  WATER WITHIN \_\_\_\_\_ FT OF THIS NOTICE AND \_\_\_\_\_ FT FROM SHORE

DO NOT USE TREATED WATER FOR THE FOLLOWING PURPOSES UNTIL:

SWIMMING \_\_\_\_\_

HOUSEHOLD USE (dishes, laundry, etc.) \_\_\_\_\_

CONSUMING FISH \_\_\_\_\_

DRINKING WATER \_\_\_\_\_

IRRIGATION (CROP) \_\_\_\_\_

PET/LIVESTOCK WATER \_\_\_\_\_

IRRIGATION (OTHER) \_\_\_\_\_



Wisconsin Dept. of Natural Resources  
101 S. Webster St., P.O. Box 7921  
Madison, WI 53707-7921  
[www.dnr.state.wi.us/lakes/plants/factsheets](http://www.dnr.state.wi.us/lakes/plants/factsheets)

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CONTACT \_\_\_\_\_  
PHONE \_\_\_\_\_

PUB-FH-443 2011

# IMAZAMOX CHEMICAL FACT SHEET

## Formulations

Imazamox is the common name of the active ingredient ammonium salt of imazamox (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-(methoxymethyl)-3-pyridinecarboxylic acid. It was registered with U.S. EPA in 2008 and is currently under registration review. An interim registration review decision was released in 2019. Imazamox is available in liquid and granular formulations. It is labeled for control of emergent, floating-leaf and submerged vegetation using direct foliar, surface or subsurface application. Commercial formulations approved for aquatic use in Wisconsin include Clearcast®, Top Deck™ and Imox™.\*

## Aquatic Use and Considerations

Imazamox is a systemic herbicide (i.e., it moves throughout the plant tissue). It is a WSSA Group 2 herbicide, meaning that the mechanism of action is by inhibiting acetolactate synthase (ALS), an enzyme necessary for plant growth. Affected plants will stop growing soon after treatment, and plant decomposition will occur over several weeks.

It is important to note that repeated use of herbicides in the same WSSA group (i.e., with the same mechanism of action) can lead to herbicide-resistant plants, even in aquatic environments. In order to reduce the risk of developing resistant genotypes, avoid using the same type of herbicides year after year, and utilize effective integrated pest management strategies as part of any long-term control program.

Liquid formulations are typically applied to submerged vegetation by broadcast spray or

underwater hose application and to emergent or floating leaf vegetation by broadcast spray or foliar application. If used as a post-emergence herbicide, imazamox should be applied to plants that are actively growing. It can also be used during a water level drawdown to prevent plant regrowth and on the emergent vegetation.

In Wisconsin, imazamox is labeled for control of invasive emergent species such as non-native Phragmites (*Phragmites australis* subsp. *australis*), purple loosestrife (*Lythrum salicaria*), flowering rush (*Butomus umbellatus*) and Japanese knotweed (*Fallopia japonica*). Imazamox is also labeled to control invasive submergent species such as curly-leaf pondweed (*Potamogeton crispus*) and Eurasian watermilfoil (*Myriophyllum spicatum*)†. Native species that are labeled as susceptible to imazamox include native pondweeds (*Potamogeton* spp.), coontail (*Ceratophyllum demersum*), sago pondweed (*Stuckenia pectinata*), water stargrass (*Heteranthera dubia*), southern naiad (*Najas guadalupensis*), variable-leaf watermilfoil (*Myriophyllum heterophyllum*), water shield (*Brasenia schreberi*), water lilies (*Nymphaea* spp. & *Nuphar* spp.), pickerelweed (*Pontederia cordata*) and bladderworts (*Utricularia* spp.)†

## Post-Treatment Water Use Restrictions

There are no post-treatment restrictions on fishing, swimming, domestic use, or livestock watering. If imazamox is applied within one-fourth of a mile of a potable water intake, water concentrations must be less than 50 parts per billion before treated water can be used as drinking water. Irrigation restrictions

† May vary by formulation, application rate, and/or product. Every product label must be carefully reviewed and followed by the user.

\* Product names are provided solely for your reference and should not be considered exhaustive nor endorsements

may apply depending on irrigation site and type of water body treated.†

### Herbicide Degradation, Persistence and Trace Contaminants

The half-life (the time it takes for half of the active ingredient to degrade) of imazamox ranges from 4 to 49 days, with an average half-life of 17 days. Imazamox is degraded by light (photolysis) and microbes. In deep waters where oxygen and light levels are low, imazamox will tend to bind to sediments rather than breaking down and has a half-life of approximately 2 years. Once imazamox binds to sediments, leaching to groundwater is believed to be very limited.

The breakdown products of imazamox are nicotinic acid and di- and tricarboxylic acids. None of the breakdown products are herbicidal nor concerns for aquatic organisms or human health.

### Impacts on Fish and Other Aquatic Organisms

Since the mechanism of action involves an enzyme that isn't found in animals, imazamox has low toxicity to animals. Imazamox is rated practically non-toxic to freshwater fish and invertebrates and does not bioaccumulate (the process by which chemicals in the environment or in a food source are taken up by plants or animals) in fish tissues.

Imazamox is also practically non-toxic to birds and mammals.

### Human Health

Most concerns about adverse effects on human health involve applicator exposure. Concentrated imazamox can cause eye and skin irritation and is harmful if inhaled. Wear proper personal protective equipment and follow label instructions while handling.

Imazamox has not been shown to cause tumors, birth defects, reproductive toxicity, or genetic mutation after long-term exposure. Imazamox is not metabolized by mammals. Based on its low toxicity to mammals and its rapid disappearance from the water column

due to degradation and sediment binding, imazamox is not considered to pose a risk to recreational water users.

### For Additional Information

U.S. Environmental Protection Agency (EPA)  
Office of Pesticide Programs  
[epa.gov/pesticides](http://epa.gov/pesticides)

Wisconsin Department of Agriculture, Trade,  
and Consumer Protection  
[datcp.wi.gov/Pages/Programs\\_Services/ACMOv  
erview.aspx](http://datcp.wi.gov/Pages/Programs_Services/ACMOverview.aspx)

Wisconsin Department of Natural Resources  
608-266-2621  
[dnr.wi.gov/lakes/plants](http://dnr.wi.gov/lakes/plants)

Wisconsin Department of Health Services  
[dhs.wisconsin.gov](http://dhs.wisconsin.gov)

National Pesticide Information Center  
1-800-858-7378  
[npic.orst.edu](http://npic.orst.edu)



# DIQUAT CHEMICAL FACT SHEET

## Formulations

Diquat (or diquat dibromide) initially received Federal registration for control of submersed and floating aquatic plants in 1962. It was initially registered with the U.S. EPA in 1986, evaluated for reregistration in 1995, and is currently under registration review. An interim registration review decision was released in 2019. The active ingredient is 6,7-dihydrodipyrido[1,2- $\alpha$ :2',1'-c] pyrazinediium dibromide. It is labeled for control of emergent, floating-leaf and submerged vegetation using direct foliar, surface or subsurface application. Commercial formulations approved for aquatic use in Wisconsin include Reward®, Harvester®, Littora® and Tribune™.\*

## Aquatic Use and Considerations

Diquat is a fast-acting contact herbicide (i.e., it affects plant cells on contact and does not move throughout the plant tissue). It is a WSSA Group 22 herbicide, meaning the mechanism of action is by PS I Electron diversion, which destroys cell membranes and chlorophyll, and interferes with photosynthesis. It is a non-selective herbicide and will affect a wide variety of plants. Following treatment, plant tissues will become visibly impacted within several hours after application and will begin to decompose within one to three days.

It is important to note that repeated use of herbicides in the same WSSA group (i.e., with the same mechanism of action) can lead to herbicide-resistant plants, even in aquatic environments. In order to reduce the risk of developing resistant genotypes, avoid using the same type of herbicides year after year, and utilize effective integrated pest

management strategies as part of any long-term control program.

Diquat is strongly attracted to silt and clay particles in the water and may not be very effective under highly turbid water conditions or where plants are covered with silt. Because diquat is a fast-acting herbicide, it is oftentimes used for managing plants growing in areas where water exchange is anticipated to limit herbicide exposure times, such as localized treatments. Due to rapid vegetation decomposition after treatment, only partial treatments (one-half to one-third of the surface area of a waterbody) should be conducted to minimize dissolved oxygen depletion and associated negative impacts on fish and other aquatic organisms. Untreated areas can be treated with diquat 14 days after the first application.

Diquat is labeled to control a variety of invasive aquatic plants, including Eurasian watermilfoil (*Myriophyllum spicatum*), curly-leaf pondweed (*Potamogeton crispus*) and flowering rush (*Butomus umbellatus*). Native species that are labeled as susceptible to diquat include coontail (*Ceratophyllum demersum*), common waterweed (*Elodea canadensis*), bladderworts (*Utricularia* spp.), pondweeds (*Potamogeton* spp.), watermilfoils (*Myriophyllum* spp.), sago pondweed (*Stuckenia pectinata*), naiads (*Najas* spp.) and duckweeds (*Lemna* spp.).†

† May vary by formulation, application rate, and/or product. Every product label must be carefully reviewed and followed by the user.

\* Product names are provided solely for your reference and should not be considered exhaustive nor endorsements.

### Post-Treatment Water Use Restrictions

There are no restrictions on swimming or fishing from water bodies treated with diquat. Treated water should not be used for drinking water for one to three days, depending on application rate. However, in one peer-reviewed study, diquat persisted in the water at levels above the EPA drinking water standard for at least three days after treatment, suggesting that the current drinking water restriction may not be sufficient under all application scenarios. Do not use treated water for pet or livestock drinking water for one day following treatment. The irrigation restriction for food crops is five days, and for ornamental plants or lawn/turf it varies from one to three days depending on application rate.†

### Herbicide Degradation, Persistence and Trace Contaminants

Diquat binds indefinitely to organic matter, allowing it to accumulate and persist in the sediments over time. It has a long half-life (the time it takes for half of the active ingredient to degrade) in sediment because of extremely tight soil sorption, as well as an extremely low rate of degradation after association with sediment. Diquat has been detected in the water column from less than a day up towards 38 days after treatment and remains in the water column longer when treating waterbodies with sandy sediments with lower organic matter and clay content. Both breakdown by sunlight (photolysis) and microbial degradation are thought to play minor roles in degradation. Diquat is not known to leach into groundwater due to its very high affinity to bind to soils.

Ethylene dibromide (EDB) is a trace contaminant in diquat products. It originates from the manufacturing process. EDB is a carcinogen, and the EPA has evaluated the health risk of its presence in formulated diquat products. The maximum level of EDB in diquat dibromide is 10 parts per billion, it degrades over time, and it does not persist as an impurity.

### Impacts on Fish and Other Aquatic Organisms

Diquat is slightly to highly toxic to freshwater fish and slightly to very highly toxic to freshwater invertebrates, even at levels below labeled application rates. Diquat is not known to bioaccumulate (the process by which chemicals in the environment or in a food source are taken up by plants or animals) in fish tissues.

### Human Health

The risk of acute exposure to diquat would be primarily to chemical applicators. Diquat causes severe skin and eye irritation and is toxic or fatal if absorbed through the skin, inhaled or swallowed. Wear personal protective equipment and follow label instructions while handling.

The risk to water users of serious health impacts (e.g., birth defects and cancer) is not believed to be significant according to the EPA. Some risk of allergic reactions or skin irritation is present for sensitive individuals.

### For Additional Information

U.S. Environmental Protection Agency (EPA)  
Office of Pesticide Programs  
[epa.gov/pesticides](http://epa.gov/pesticides)

Wisconsin Department of Agriculture, Trade,  
and Consumer Protection  
[datcp.wi.gov/Pages/Programs\\_Services/ACMOv  
erview.aspx](http://datcp.wi.gov/Pages/Programs_Services/ACMOverview.aspx)

Wisconsin Department of Natural Resources  
608-266-2621  
[dnr.wi.gov/lakes/plants](http://dnr.wi.gov/lakes/plants)

Wisconsin Department of Health Services  
[dhs.wisconsin.gov](http://dhs.wisconsin.gov)

National Pesticide Information Center  
1-800-858-7378  
[npic.orst.edu](http://npic.orst.edu)



PULL HERE TO OPEN ►

# Tribune<sup>TM</sup>

## **HERBICIDE**

**TO PREVENT ACCIDENTAL POISONING,  
NEVER PUT INTO FOOD, DRINK, OR  
OTHER CONTAINERS, AND USE STRICTLY  
IN ACCORDANCE WITH ENTIRE LABEL.**

**DO NOT USE THIS PRODUCT FOR  
REFORMULATION.**

*Active ingredient:*  
Diquat dibromide  
[6,7-dihydrodipyrido (1,2-a:2',1'-c)  
pyrazinediium dibromide] . . . . . 37.3%  

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*Other Ingredients:* . . . . . 62.7%  

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*Total:* . . . . . 100.0%

*Contains 2 lbs. diquat cation per gal.  
(3.73 lbs. diquat dibromide per gal.)*

*EPA Reg. No. 100-1390  
EPA Est. 100-LA-001*

**KEEP OUT OF REACH  
OF CHILDREN.**

## **CAUTION**

*See additional precautionary statements  
on label.*

*Product of United Kingdom  
Formulated in USA*

**SCP 1390A-L1 1110  
335260**

# 2.5 gallons

**Net Contents**

<b>FIRST AID</b>	
<b>If inhaled</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>If swallowed</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by the poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If on skin or clothing</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>NOTE TO PHYSICIANS</b>	
<p>To be effective, treatment for diquat poisoning must begin <b>IMMEDIATELY</b>. Treatment consists of binding diquat in the gut with suspensions of activated charcoal or bentonite clay, administration of cathartics to enhance elimination, and removal of diquat from the blood by charcoal hemoperfusion or continuous hemodialysis.</p>	
<p>Have the product container or label with you when calling a poison control center or doctor, or going for treatment.</p>	
<b>HOTLINE NUMBER</b>	
<p>For 24-Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), Call <b>1-800-888-8372</b></p>	

## PRECAUTIONARY STATEMENTS

### Hazards to Humans and Domestic Animals

#### CAUTION

Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid breathing spray mist. Avoid contact with eyes, skin, or clothing.

*continued...*

## PRECAUTIONARY STATEMENTS (*continued*)

### Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are: barrier laminate, butyl rubber  $\geq 14$  mils, nitrile rubber  $\geq 14$  mils. If you want more options, follow the instructions for Category A on an EPA Chemical Resistance Category Selection Chart.

#### Mixers, Loaders, Applicators and other handlers must wear:

- Coveralls over short-sleeved shirt and short pants or coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure
- Chemical-resistant apron when cleaning equipment, mixing, or loading
- Face shield when mixing or loading

**Exception:** After this product has been diluted to 0.50% Tribune or less in water (i.e., the labeled rate for some spot applications), applicators for AQUATIC SURFACE APPLICATIONS must, at a minimum, wear (Note - Mixers and Loaders for this application method must still wear the personal protective equipment (PPE) as described in the above section):

- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves
- Protective eyewear

**Exception:** At a minimum, applicators for AQUATIC SUBSURFACE APPLICATIONS must wear (Note - Mixers and Loaders for this application method must still wear the personal protective equipment (PPE) as described in the above section):

- Short-sleeved shirt and short pants
- Waterproof gloves
- Chemical-resistant footwear plus socks

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

### Engineering Control Statements

Mixers and loaders supporting aerial applications are required to use closed systems that provide dermal protection. The closed system must be used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4)]. When using the closed system, mixers and loaders' PPE requirements may be reduced or modified as specified in the WPS.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the 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/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Prolonged contact of the product with the skin may produce burns.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### **Environmental Hazards**

This pesticide is toxic to aquatic invertebrates. **For Terrestrial Uses**, do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water. **For Aquatic Uses** do not apply directly to water except as specified on this label.

## **CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY**

**NOTICE:** Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, LLC or Seller. To the extent permitted by applicable law, Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. To the extent permitted by applicable law: (1) this warranty does not extend to the use of the product contrary to label instructions or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and, (2) Buyer and User assume the risk of any such use. To the extent permitted by applicable law, SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS WARRANTED BY THIS LABEL.

To the extent permitted by applicable law, in no event shall SYNGENTA be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

## **DIRECTIONS FOR USE**

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

**READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH PRECAUTIONARY STATEMENTS AND DIRECTIONS, AND WITH APPLICABLE STATE AND FEDERAL REGULATIONS.**

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

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 24 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 over short-sleeved shirt and short pants, or coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure

### 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 all unprotected persons out of operating areas or vicinity where there may be drift.**

**For terrestrial uses**, do not enter or allow entry of maintenance workers into treated areas, or allow contact with treated vegetation wet with spray, dew, or rain, without appropriate protective clothing until spray has dried.

**For aquatic uses**, do not enter treated areas while treatments are in progress.

#### For Bulk And Mini-Bulk Containers

When the container is empty, replace the cap and seal all openings that have been opened during use and return the container to the point of purchase, or to a designated location named at the time of purchase of this product. This container must be refilled with this pesticide product. **DO NOT REUSE THE CONTAINER FOR ANY OTHER PURPOSE.** Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices. Check for leaks after refilling and before transporting. Do not transport if this container is damaged or leaking. If the container is damaged, leaking or obsolete, contact Syngenta Crop Protection at 1-800-888-8372. If not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling. Disposal of this container must be in compliance with state and local regulations.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

**CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER!**

### SPECIFIC USE DIRECTIONS

Tribune is a nonvolatile herbicidal chemical for use as a general herbicide to control weeds in commercial greenhouses and nurseries; ornamental seed crops (flowers, bulbs, etc. – except in the state of California); landscape, industrial, recreational, commercial, residential, and public areas; turf renovation (all turf areas except commercial sod farms); dormant established turfgrass (bermudagrass, zoysiagrass – nonfood or feed crop); and aquatic areas. Absorption and herbicidal action is usually quite rapid with effects visible in a few days. Tribune controls weeds by interfering with photosynthesis within green plant tissue. Weed plants should be succulent and actively growing for best results. Rinse all spray equipment thoroughly with water after use. Avoid spray drift to crops, ornamentals, and other desirable plants during application, as injury may result. Application to muddy water may result in reduced control. Minimize creating muddy water during application. Use of dirty or muddy water for Tribune dilution may result in reduced herbicidal activity. Avoid applying under conditions of high wind, water flow, or wave action.

## **SPRAY DRIFT MANAGEMENT**

Avoiding spray drift at the application site is the responsibility of the applicator and the grower. 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 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  $\frac{3}{4}$  the length of the wing-span or rotor.
- Nozzles must always point backward parallel with the air stream and never be pointed downward more than 45 degrees.

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

### **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 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. For many nozzle types, lower pressure produces larger droplets. 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 released 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  $\frac{3}{4}$  of the wingspan or rotor length may further reduce drift without reducing swath width.

### **Application Height**

Applications should not be made at a height greater than 10 ft. above the top of the target 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 should increase with increasing drift potential (higher wind, smaller drops, etc.).

### **Wind**

Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided 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**

Applications should not occur 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 concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

### **Sensitive Areas**

The pesticide should only be applied when the wind is blowing away from adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops).

### **COMMERCIAL GREENHOUSES AND NURSERIES**

For general weed control in commercial greenhouses (beneath benches), field grown and container stock, and other similar areas, Tribune may be applied preplant or postplant preemergence in field grown ornamental nursery plantings or postemergence as a directed spray. Tribune may also be applied preemergence in ornamental seed crops (except in the state of California). Avoid contact with desirable foliage as injury may occur. Do not use on food or feed crops.

**Spot spray:** 1-2 qts. Tribune plus the labeled rate of a 75% or greater nonionic surfactant per 100 gals. of water, or 0.75 oz. (22 mls.) Tribune plus the labeled rate of a 75% or greater nonionic surfactant per 1 gal. of water.

**Broadcast:** 1-2 pts. Tribune in a minimum of 15 gals. of water per acre. Add the labeled rate of a 75% or greater nonionic surfactant per 100 gals. of spray mixture. Use an adequate spray volume to insure good coverage.

### **ORNAMENTAL SEED CROPS (FLOWERS, BULBS, ETC.) EXCEPT IN THE STATE OF CALIFORNIA**

For preharvest desiccation of ornamental seed crops. NOT FOR FOOD OR FIBER CROPS.

**Broadcast (Air or Ground):** 1.5-2 pts. Tribune plus the labeled rate of a 75% or greater nonionic surfactant per acre in sufficient water (minimum of 5 gals. by air; 15 gals. by ground) for desiccation and weed burndown. Repeat as needed at no less than 5-day intervals up to three applications. Do not use seed, screenings, or waste as feed or for consumption.

### **DIRECTIONS FOR LANDSCAPE, INDUSTRIAL, RECREATIONAL, COMMERCIAL, RESIDENTIAL, AND PUBLIC AREAS**

Tribune provides fast control of broadleaf and grassy weeds in industrial, recreational, golf course, commercial, residential, and public areas.

Tribune is a nonselective herbicide that rapidly kills undesirable above ground weed growth in 24-36 hours. Avoid application of Tribune to desirable plants.

Tribune is a contact/desiccant herbicide; it is essential to obtain complete coverage of the target weeds to get good control. Improper application technique and/or application to stressed weeds may result in unacceptable weed control. For best results, apply to actively growing, young weeds.

Difficult weeds (such as perennial or deeply-rooted weeds) can often be controlled by tank mixing Tribune with other systemic-type herbicides. Refer to other product labels for specific application directions.

For residual weed control, tank mix Tribune with a preemergent herbicide labeled for the intended use site. When mixing Tribune with another herbicide, it is recommended to mix just a small amount first to determine if the mixture is physically compatible before proceeding with larger volumes.

Syngenta has not tested all possible tank mixtures with other herbicides for compatibility, efficacy or other adverse effects. Before mixing with other herbicides Syngenta recommends you first consult your state experimental station, state university or extension agent.

**Grounds maintenance weed control:** Tribune can be used as a spot or broadcast spray to control weeds in public, commercial and residential landscapes, including landscape beds, lawns, golf courses and roadsides. Tribune can also be used for weed control around the edges and nonflooded portions of ponds, lakes and ditches.

**Trim and Edge weed control:** Tribune can be used to eliminate undesired grass and broadleaf plant growth in a narrow band along driveways, walkways, patios, cart paths, fence lines, and around trees, ornamental gardens, buildings, other structures, and beneath noncommercial greenhouse benches. Vegetation control with Tribune is limited to the spray application width. Do not exceed the labeled rate of Tribune as excessive rates may result in staining of concrete-based materials.

Tribune, since it does not translocate systemically, can be used as an edging or pruning tool when precisely applied to select areas of grass or to undesirable growth on desirable ornamental bedding plants, ground covers, etc.

**Industrial weed control:** Tribune can be used as a spot or broadcast spray either alone or in combination with other herbicides as a fast burndown or control weeds in rights-of-ways, railroad beds/yards, highways, roads, dividers and medians, parking lots, pipelines, pumping stations, public utility lines, transformer stations and substations, electric utilities, storage yards, and other non-crop areas.

**Spot spray:** Apply either 1-2 qts. of Tribune plus the labeled rate of a 75% or greater nonionic surfactant per 100 gals. water, or 0.75 oz. (22 mls.) Tribune plus the labeled rate of a 75% or greater nonionic surfactant per 1 gal. of water.

**Broadcast:** 1-2 pts. Tribune per acre in sufficient water to insure good spray coverage. Add the labeled rate of 75% or greater nonionic surfactant per 100 gals. spray mixture. Greater water volumes are necessary if the target plants are tall and/or dense. It is recommended that 60 gals. or greater water volume be used to obtain good coverage of dense weeds.

#### **TURF RENOVATION (ALL TURF AREAS EXCEPT COMMERCIAL SOD FARMS)**

To desiccate golf course turf and other turf areas prior to renovation, apply 1-2 pts. of Tribune per acre plus the labeled rate of a 75% or greater nonionic surfactant in 20-100 gals. of water (4 teaspoons of Tribune plus the labeled rate of a 75% or greater nonionic surfactant per 1 gal. of water) using ground spray equipment. Apply for full coverage and thorough contact with the turfgrass. Apply only when the turf is dry, free from dew and incidental moisture. For enhanced turf desiccation, especially in the case of thick turfgrass, water volumes should approach 100 gals. of water per acre.

For **suppression** of regrowth and quick desiccation of treated turfgrass, Tribune may be mixed with other systemic nonselective or systemic postemergence grassy weed herbicides. Refer to other product labels for specific application directions and restrictions.

Avoid spray contact with, or spray drift to, foliage of ornamental plants or food crops.

Do not graze livestock on treated turf or feed treated thatch to livestock.

#### **DORMANT ESTABLISHED TURFGRASS (BERMUDAGRASS, ZOYSIAGRASS), NONFOOD OR FEED CROP**

For control of emerged annual broadleaf and grass weeds, including Little Barley\*, Annual Bluegrass, Bromes including Rescuegrass, Sixweeks fescue, Henbit, Buttercup, and Carolina Geranium in established dormant bermudagrass lawns, parks, golf courses, etc.

Apply 1-2 pts. Tribune per acre in 20-100 gals. of spray mix by ground as a broadcast application. Add the labeled rate of a 75% or greater nonionic surfactant per 100 gals. of spray mixture.

Bermudagrass must be dormant at application. Application to actively growing bermudagrass may cause delay or permanent injury. Users in the extreme Southern areas should be attentive to the extent of dormancy at the time of application.

\*For control of Little Barley, apply Tribune prior to the mid-boot stage.

#### **AQUATIC USE DIRECTIONS**

##### **New York – Not for Sale or Use in New York State without Supplemental Special Local Needs Labeling.**

Necessary approval and/or permits must be obtained prior to application if required. Consult the responsible State Agencies (i.e., Fish and Game Agencies, State Water Conservation authorities, or Department of Natural Resources).

Treatment of dense weed areas may result in oxygen loss from decomposition of dead weeds. This loss of oxygen may cause fish suffocation. Therefore, treat only  $\frac{1}{3}$  to  $\frac{1}{2}$  of the water body area at one time and wait 14 days between treatments.

For best results on submersed weeds, Tribune should be applied to actively growing (photosynthesizing) weeds when water temperatures have reached or exceeded approximately 50°F, typically during the Spring or early Summer.

For application only to **still water** (i.e. ponds, lakes, and drainage ditches) where there is minimal or no outflow to public waters.

and/or

For applications to **public waters** in ponds, lakes, reservoirs, marshes, bayous, drainage ditches, canals, streams, rivers, and other slow-moving or quiescent bodies of water for control of aquatic weeds. For use by:

- Corps of Engineers; or
- Federal or State Public Agencies (i.e., Water Management District personnel, municipal officials); or
- Applicators and/or Licensees (Certified for aquatic pest control) that are authorized by the State or Local government.

Treated water may be used according to the following table or until such time as an approved assay (example: PAM II Spectromatic Method) shows that the water does not contain more than the designated maximum contaminant level goal (MCLG) of 0.02 mg/l. (ppm) of diquat dibromide (calculated as the cation).

#### Water Use Restrictions Following Applications With Tribune (Days)

Application Rate	Drinking	Fishing and Swimming	Livestock/ Domestic Animals Consumption	Spray Tank Applications** and Irrigation to Turf and Landscape Ornamentals	Spray Tank Applications** and Irrigation to Food Crops and Production Ornamentals
2 gals./ surface acre	3 days	0	1 day	3 days	5 days
1 gal./ surface acre	2 days	0	1 day	2 days	5 days
0.75 gal./ surface acre	2 days	0	1 day	2 days	5 days
0.50 gal./ surface acre	1 day	0	1 day	1 day	5 days
<b>Spot Spray*</b> (<0.5 gal./ surface acre)	1 day	0	1 day	1 day	5 days

\*Add a nonionic surfactant (with at least 75% of the constituents active as a spray adjuvant) at the rate recommended by the manufacturer.

\*\*For preparing agricultural sprays for food crops, turf or ornamentals (to prevent phytotoxicity), do not use water treated with Tribune before the specified time period.

When the contents of more than one spray tank is necessary to complete a single aquatic application, no water holding restrictions apply between the consecutive spray tanks.

No applications are to be made in areas where commercial processing of fish, resulting in the production of fish protein concentrate or fish meal, is practiced. Before application, coordination and approval of local and/or State authorities must be obtained.

#### **Floating and Marginal Weeds Including:**

Water lettuce, *Pistia stratiotes*

Water hyacinth, *Eichhornia crassipes*

Duckweed, *Lemna* spp.

Salvinia spp. (including *S. molesta*)

Pennywort (*Hydrocotyle* spp.)

Frog's Bit<sup>1</sup>, *Limnobium spongia*

Cattails, *Typha* spp.

<sup>1</sup>Not for use in California

Tribune may be applied by backpack, airboat, spray handgun, helicopter, airplane, or similar application equipment that results in thorough spray coverage.

**Spot Treatment:** Apply Tribune at 2 quarts per 100 gallons spray carrier (0.5% solution) with an approved aquatic wetting agent at 0.25-1.0% v/v (1 quart to 1 gallon per 100 gallons water). For cattail control, Tribune should be applied prior to flowering at the maximum application rate (8 quarts of Tribune/100 gallons spray carrier) plus the wetting agent. Repeat treatments may be necessary for complete control.

Spray to completely wet target weeds but not to runoff. Densely packed weeds or mats may require additional applications due to incomplete spray coverage. Re-treat as needed. For best results, re-treat weed escapes within 2 weeks of the initial treatment.

**Broadcast Treatment:** Apply Tribune at the rate of 0.5-2.0 gallons per surface acre in sufficient carrier along with 16-32 oz./A of an approved wetting agent. Re-treat as necessary for densely populated weed areas. Good coverage is necessary for control of the target weeds.

For duckweed control, apply Tribune at 1-2 gallons/A.

#### **Submersed Weeds Including:**

Bladderwort, *Utricularia* spp.

Hydrilla, *Hydrilla verticillata*

Watermilfoils (including Eurasian), *Myriophyllum* spp.

Pondweeds<sup>1</sup>, *Potamogeton* spp.

Coontail, *Ceratophyllum demersum*

Elodea, *Elodea* spp.

Brazilian Elodea, *Egeria densa*

Naiad, *Najas* spp.

Algae<sup>2</sup>, *Spirogyra* spp. and *Pithophora* spp.

<sup>1</sup>Tribune controls *Potamogeton* species except Richardson's pondweed, *P. richardsonii*.

<sup>2</sup>Suppression only. For control of *Spirogyra* and/or *Pithophora*, use Tribune in a tank mix with an approved algaecide.

For severe weed or algae infestations, the use of an approved algaecide either as a pretreatment to the Tribune application or in a tank mix, may result in enhanced weed control.

To control submersed weeds, apply Tribune in water at 0.5-2.0 gallons per surface acre (per 4 foot water depth). For severe weed infestations, use the 2.0 gallon per surface acre rate. For best results, re-treat as necessary on 14-21 day intervals. The table below shows how many gallons of Tribune to apply per surface acre based on water depth.

	Gallons of Tribune per Surface Acre Average Water Depth			
	1 Foot	2 Feet	3 Feet	4 Feet
1 gallon/acre rate	0.25 gal.	0.50 gal.	0.75 gal.	1.0 gal.
2 gallon/acre rate	0.50 gal.	1.0 gal.	1.5 gals.	2.0 gals.

**Note:** For water depths of 2 feet or less including shorelines, do not exceed 1 gallon per surface acre.

**Subsurface Applications:** Where the submersed weed growth, especially Hydrilla, has reached the water surface, apply either in a water carrier or an invert emulsion through boom trailing hoses carrying nozzle tips to apply the dilute spray below the water surface to insure adequate coverage.

**Bottom Placement:** Where submersed weeds such as Hydrilla, Bladderwort, or Coontail have reached the water surface and/or where the water is slowly moving through the weed growth, the use of an invert emulsion carrier injecting diluted Tribune near the bottom with weighted hoses may improve control. The addition of a copper based algaecide may improve control. If algae are present along with the submersed weeds, a pretreatment with a copper based algaecide may improve overall control.

**Surface Application for Submerged Aquatic Weeds:** Apply the recommended rate of Tribune as a spray in sufficient carrier to fully cover the target area. Applications should be made to ensure complete coverage of the weed areas. In mixed weed populations, use the high rate of application as indicated by weeds present. For dense submersed weeds or water over 2 feet deep, a surface spray is not recommended (Tribune should be applied subsurface in these situations.)

**If posting is required by your state or tribe – consult the agency responsible for pesticide regulations for specific details.**

## STORAGE AND DISPOSAL

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

### Pesticide Storage

Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Do not contaminate feed, foodstuffs, or drinking water. Do not store or transport near feed or food. Store at temperatures above 32°F. For help with any spill, leak, fire, or exposure involving this material, call 1-800-888-8372.

### **Pesticide Disposal**

Open dumping is prohibited. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

### **Container Handling [less than 5 gallons]**

Non-refillable container. Do not reuse or refill this container. Offer for recycling if available. Triple 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 and disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

### **Container Handling [Bulk/Mini-Bulk]**

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 person refilling. To clean container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 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 container in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities. If the container is damaged, leaking or obsolete, contact Syngenta Crop Protection at 1-800-888-8372.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

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Tribune™ is a trademark of a Syngenta Group Company

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For non-emergency (e.g., current product information), call  
Syngenta Crop Protection at 1-800-334-9481.

Manufactured for:  
Syngenta Crop Protection, LLC  
P. O. Box 18300  
Greensboro, North Carolina 27419-8300

**SCP 1390A-L1 1110**  
**335260**

# Tribune™

**KEEP OUT OF REACH OF CHILDREN.  
CAUTION**

## Herbicide

**TO PREVENT ACCIDENTAL POISONING,  
NEVER PUT INTO FOOD, DRINK, OR  
OTHER CONTAINERS, AND USE STRICTLY  
IN ACCORDANCE WITH ENTIRE LABEL.**

**DO NOT USE THIS PRODUCT FOR  
REFORMULATION.**

Active ingredient:	
Diquat dibromide	
[6,7-dihydrodipyrido (1,2-a:2',1'-c) pyrazinediium dibromide] . . . . .	37.3%
Other Ingredients:	62.7%
Total:	100.0%

Contains 2 lbs. diquat cation per gal. (3.73 lbs. diquat dibromide per gal.)

See additional precautionary statements on label.

### AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

EPA Reg. No. 100-1390  
EPA Est. 100-LA-001

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Product of United Kingdom  
Formulated in USA

Manufactured for:  
Syngenta Crop Protection, LLC  
P. O. Box 18300  
Greensboro, North Carolina 24719-8300

**SCP 1390A-L1 1110  
335260**

**2.5 gallons**  
Net Contents

### 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. **If swallowed:** Call poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person. **If in eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice. **If on skin or clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

**NOTE TO PHYSICIANS:** To be effective, treatment for diquat poisoning must begin **IMMEDIATELY**. Treatment consists of binding diquat in the gut with suspensions of activated charcoal or bentonite clay, administration of cathartics to enhance elimination, and removal of diquat from the blood by charcoal hemoperfusion or continuous hemodialysis. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

**HOTLINE NUMBER:** For 24-Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), Call **1-800-888-8372**.

### PRECAUTIONARY STATEMENTS

**Hazards to Humans and Domestic Animals**

#### CAUTION

Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid breathing spray mist. Avoid contact with eyes, skin, or clothing.

**Environmental Hazards:** This pesticide is toxic to aquatic invertebrates. **For Terrestrial Uses,** do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water. **For Aquatic Uses** do not apply directly to water except as specified on this label.

### STORAGE AND DISPOSAL

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

**Pesticide Storage:** Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Do not contaminate feed, foodstuffs, or drinking water. Do not store or transport near feed or food. Store at temperatures above 32°F. For help with any spill, leak, fire, or exposure involving this material, call 1-800-888-8372.

**Pesticide Disposal:** Open dumping is prohibited. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**Container Handling [less than 5 gallons]:** Non-refillable container. Do not reuse or refill this container. Offer for recycling if available. Triple 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 and disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

For minor spills, leaks, etc., follow all precautions indicated on this label and clean up immediately. Take special care to avoid contamination of equipment and facilities during cleanup procedures and disposal of wastes. In the event of a major spill, fire, or other emergency, call 1-800-888-8372, day or night.

**CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER!**

BAR CODE # IS  
(01) 0 07 02941 45811  
LAST DIGIT IS CHECK DIGIT  
UCC/EAN 128

# Clearcast®

Herbicide

SPECIMEN



GROUP 2 HERBICIDE

FOR THE CONTROL OF VEGETATION IN AND AROUND AQUATIC AND NON-CROPLAND SITES INCLUDING AREAS THAT MAY BE GRAZED OR CUT FOR HAY

**Active Ingredient:**

ammonium salt of imazamox 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-(methoxymethyl)-3-pyridinecarboxylic acid† ..... 12.1%

**Other Ingredients** ..... 87.9%

**TOTAL** ..... 100.0%

† Equivalent to 11.4% 2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-5-(methoxymethyl)-3-pyridinecarboxylic acid 1 gallon contains 1.0 pound of active ingredient as the free acid

## Keep Out of Reach of Children CAUTION/PRECAUCIÓN

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

See inside for complete Precautionary Statements, Directions for Use, Conditions of Sale and Warranty, and state-specific crop and/or use site restrictions.

Notice: Read the entire label before using. Use only according to label directions. Before buying or using this product, read Warranty Disclaimer and Misuse statements inside label booklet. If terms are unacceptable, return at once unopened.

EPA Reg. No. 241-437-67690  
EPA Est. No. 067690-NC-002  
NVA 2016-04-299-0160

FPL20161026  
166801

Manufactured for:  
SePRO Corporation 11550 N. Meridian St., Ste. 600, Carmel, IN 46032 U.S.A.

## Keep Out of Reach of Children CAUTION/PRECAUCIÓN

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

FIRST AID	
<b>If on skin or clothing</b>	<ul style="list-style-type: none"> <li>Take off contaminated clothing.</li> <li>Rinse skin immediately with plenty of water for 15 to 20 minutes.</li> <li>Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes.</li> <li>Remove contact lenses, if present, after the first 5 minutes; then continue rinsing eyes.</li> <li>Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If inhaled</b>	<ul style="list-style-type: none"> <li>Move person to fresh air.</li> <li>If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably mouth to mouth if possible.</li> <li>Call a poison control center or doctor for further treatment advice.</li> </ul>
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. In case of an emergency endangering life or property involving this product, call <b>INFOTRAC</b> for emergency medical treatment information: <b>1-800-535-5053</b> .	

### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

**CAUTION.** Harmful if absorbed through skin or inhaled. Causes moderate eye irritation. Avoid breathing spray mist. Avoid contact with skin, eyes or clothing.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants;
- Chemical-resistant gloves such as barrier laminate, butyl rubber ≥14 mils, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils, natural rubber (includes natural rubber blends and laminates) ≥ 14 mils, polyethylene, polyvinyl chloride (PVC) ≥ 14 mils, or Viton ≥ 14 mils;
- Shoes plus socks.

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

### USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### ENVIRONMENTAL HAZARDS

This pesticide may be hazardous to plants outside the treated area. **DO NOT** apply to water except as specified in this label. **DO NOT** contaminate water when disposing of equipment washwaters and rinsate.

### DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with its labeling. This labeling must be in the possession of the user at the time of pesticide application.

**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.

Ensure spray drift to nontarget susceptible species does not occur.

**DO NOT** apply Clearcast® Herbicide in any manner not specifically described in this label.

Observe all cautions and limitations on this label and on the labels of products used in combination with Clearcast.

**DO NOT** use Clearcast other than in accordance with the instructions set forth on this label. Keep containers closed to avoid spills and contamination.

### STORAGE AND DISPOSAL

**DO NOT** contaminate food, feed or water by storage or disposal.

#### Pesticide Storage

Keep from freezing. **DO NOT** store below 32°F.

#### Pesticide Disposal

Wastes resulting from the use of this product may be disposed of on-site or at an approved waste disposal facility.

#### Container Handling

**Nonrefillable Container. DO NOT** reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

#### Triple rinse containers small enough to shake (capacity ≤ 5 gallons)

**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 ¼ 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.

#### Triple rinse containers too large to shake (capacity >5 gallons) as

**follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ 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

## STORAGE AND DISPOSAL *(continued)*

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 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.

**Refillable Container.** Refill this container with pesticide only.

**DO NOT** reuse this container for any other purpose. Triple rinsing the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.

**Triple rinse as follows:** To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

When this container is empty, replace the cap and seal all openings that have been opened during use; return the container to the point of purchase or to a designated location. This container must only be refilled with a pesticide product. Prior to refilling, inspect carefully for damage such as cracks, punctures, abrasions, worn-out threads and closure devices.

Check for leaks after refilling and before transport. **DO NOT** transport if this container is damaged or leaking. If the container is damaged, or leaking, or obsolete and not returned to the point of purchase or to a designated location, triple rinse emptied container and offer for recycling, if available, or dispose of container in compliance with state and local regulations.

## IN CASE OF EMERGENCY

In case of large-scale spill of this product, call INFOTRAC at 1-800-535-5053.

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment
- Your local poison control center (hospital)
- INFOTRAC: 1-800-535-5053

### Steps to take if material is released or spilled:

- Dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal.
- Remove contaminated clothing, and wash affected skin areas with soap and water.
- Wash clothing before reuse.
- Keep the spill out of all sewers and open bodies of water.

## PRODUCT INFORMATION

**Clearcast® herbicide** is an aqueous formulation that may be diluted in water and either applied directly to water for the control/suppression of certain submerged aquatic vegetation or applied as a broadcast or spot spray to floating and emergent vegetation. Aquatic sites that may be treated include estuarine and marine sites, ponds, lakes, reservoirs, wetlands, marshes, swamps, bayous, arroyos, ditches, canals, streams, rivers, creeks and other slow-moving or quiescent bodies of water. **Clearcast** may also be used during drawdown conditions. **Clearcast** may also be applied for terrestrial and riparian vegetation control in industrial noncropland sites, and railroad, utility, and highway rights-of-way. Industrial noncropland sites include utility plant sites, tank farms, pumping installations, storage areas, fence rows and ditch banks. **Clearcast** may also be used for the establishment and maintenance of wildlife openings. **Clearcast** may also be used on those sites listed above that may be grazed or cut for hay.

**Clearcast** is quickly absorbed by foliage and/or plant roots and rapidly translocated to the growing points stopping growth. Susceptible plants may develop a yellow appearance or general discoloration and will eventually die or be severely growth inhibited.

**Clearcast** is herbicidally active on many submerged, emergent and floating broadleaf and monocot aquatic plants. The relative levels of control and selectivity can be manipulated by using a choice of rates and herbicide placement (water injected or floating/emergent foliar application).

To help maintain the utility of herbicide programs, the use of herbicides with different modes of action is effective in managing weed resistance.

## Spray Adjuvants

Applications of **Clearcast** to emergent, floating or shoreline species require the use of a spray adjuvant. Always use a spray adjuvant that is appropriate for aquatic sites.

**Nonionic Surfactants** - Use a nonionic surfactant at 0.25% volume/volume (v/v) or higher (see manufacturer's label) of the spray solution (0.25% v/v is equivalent to 1 quart in 100 gallons). For best results, select a nonionic surfactant with an HLB (hydrophilic to lipophilic balance) ratio between 12 and 17 with at least 70% surfactant in the formulated product (alcohols, fatty acids, oils, ethylene glycol or diethylene glycol should not be considered as surfactants to meet the above requirements).

**Methylated Seed Oils or Vegetable Oil Concentrates** - Instead of a surfactant, a methylated seed oil or vegetable-based seed oil concentrate may be used at 1.5 to 2 pints per acre. When using spray volumes greater than 30 gallons per acre, mix methylated seed oil or vegetable-based seed oil concentrates at 1% of the total spray volume, or alternatively use a nonionic surfactant as described above. Research indicates that these oils may aid in **Clearcast** deposition and uptake by plants under stress.

**Silicone-based Surfactants** - See manufacturer's label for specific rates. Silicone-based surfactants may reduce the surface tension of the spray droplet allowing greater spreading on the leaf surface as compared to conventional nonionic surfactants. However, some silicone-based surfactants may dry too quickly, limiting herbicide uptake.

**Invert Emulsions** - **Clearcast** can be applied as an invert emulsion. The spray solution results in an invert (water-in-oil) spray emulsion designed to minimize spray drift and spray runoff, resulting in more herbicide on the target foliage. The spray emulsion may be formed in a single tank (batch mixing) or injected (in-line mixing). Consult the invert chemical label for proper mixing directions.

**Other** - An antifoaming agent, spray pattern indicator, sinking agent or drift-reducing agent may be applied at the product labeled rate if necessary or desired.

## Spray Drift Requirements for Aerial Application

- Applicators are required to use a coarse or coarser droplet size (ASABE S572) or, if specifically using a spinning atomizer nozzle, applicators are required to use a volume mean diameter (VMD) of 385 microns or greater for release heights below 10 feet. Applicators are required to use a very coarse or coarser droplet size or, if specifically using a spinning atomizer nozzle, applicators are required to use a VMD of 475 microns or greater for release heights above 10 feet. Applicators must consider the effects of nozzle orientation and flight speed when determining droplet size.
- Applicators are required to use upwind swath displacement.
- The boom length must not exceed 60% of the fixed wingspan or 90% of the rotor blade diameter to reduce spray drift.
- **DO NOT** apply when wind speed is greater than 10 mph.
- If applying at wind speeds less than 3 mph, the applicator must determine if
  1. Conditions of temperature inversion exist or
  2. Stable atmospheric conditions exist at or below nozzle height.

**DO NOT** make applications into areas of temperature inversions or stable atmospheric conditions.

## Spray Drift Requirements for Ground Boom Application

- Applicators are required to use a nozzle height below 4 feet above the ground or plant canopy and coarse or coarser droplet size (ASABE S572) or, if specifically using a spinning atomizer nozzle, applicators are required to use a volume mean diameter (VMD) of 385 microns or greater.
- Applications with wind speeds greater than 10 mph are prohibited.
- Applications into temperature inversions are prohibited.

**DO NOT** apply when wind conditions may result in drift, when temperature inversion conditions exist, or when spray may be carried to sensitive areas. See *Managing Off-target Movement* section for more drift reduction recommendations.

## AQUATIC USE DIRECTIONS

**Clearcast® herbicide** may be applied directly to the water for the control of submerged aquatic plant species and some emergent and floating species, or as a foliar application specifically for emergent and floating species.

### DO NOT exceed maximum use rate per application:

- Water treatment - 500 parts per billion (ppb) (173 fl ozs of **Clearcast** per acre foot)
- Foliar broadcast application - 1 gallon per acre (1.0 lb ae/A)
- Foliar spot application - up to 5% **Clearcast** by volume

**Clearcast** may be applied by surface and aerial equipment including both fixed-wing aircraft and helicopter.

## Foliar Application

### Targeted Emergent and/or Floating Vegetation Application

To make surface applications targeting emergent or floating vegetation, uniformly apply with properly calibrated broadcast or spot treatment equipment in 10 or more gallons of water per acre. Spot treatments can be made with up to 5% **Clearcast** by volume. To ensure thorough spray coverage, higher spray volumes may be required when treating areas with large and/or dense vegetation. Use an appropriate spray pressure to minimize the drift potential depending upon spray equipment, conditions and application objectives.

### Foliar Treatment of Emergent and Floating Vegetation Guidelines

- Always use a surfactant for foliar applications of emergent and floating weeds.
- Foliar applications of **Clearcast** may be made as a broadcast spray or as a spot spray with a percent spray solution ranging from 0.25% to 5% **Clearcast** by volume.
- Control will be reduced if spray is washed off foliage by wave action.

In aquatic sites, those application techniques described in the *Terrestrial Use Directions* section may be used to treat emergent vegetation.

## Application to Water

### Water Application to Target Submerged and/or Emergent/Floating Vegetation

**Clearcast** may be broadcast-applied to the water surface or injected below the water surface. **Clearcast** may be applied as undiluted product or diluted with water prior to application. Under surface-matted conditions, inject **Clearcast** below the water surface to achieve better product distribution.

Apply **Clearcast** to water to achieve a final concentration of the active ingredient of no more than 500 ppb. Multiple applications of **Clearcast** may be made during the annual growth cycle to maintain the desired vegetation response.

Clearcast Rates Per Treated Surface Acre				
Average Water Depth of Treatment Site (feet)	Desired Active Ingredient Concentration (ppb) <sup>†</sup>			
	50	100	200	500
	Clearcast Rate per Treated Surface Acre (fl ozs)			
1	17	35	69	173
2	35	69	138	346
3	52	104	207	518
4	70	138	277	691
5	87	173	346	864
6	104	207	415	1,037
7	122	242	484	1,210
8	139	277	553	1,382
9	157	311	622	1,555
10	174	346	691	1,728

<sup>†</sup>**Clearcast** contains 1.0 pound of active ingredient per gallon. There are 128 fl ozs in one gallon.

## Aerial Application

**Clearcast** may be applied by both fixed-wing aircraft and helicopter. There is no minimum spray volume when making applications directly to the water. For applications targeting emergent and/or floating vegetation, uniformly apply with properly calibrated equipment in 5 or more gallons of water per surface acre. For best results, make aerial applications using a minimum of 20 gallons per acre.

## Drawdown Application

**Clearcast** may be used in drawdown situations to provide postemergence and/or preemergence control/suppression of aquatic vegetation. Apply **Clearcast** as a broadcast spray at rates up to 1 gallon/A or as a spot spray treatment with up to 5% **Clearcast** by volume. Make applications when water has receded and exposed soil is moist to dry. For postemergence (foliar) applications, wait at least two weeks after application before reintroducing water. When treating irrigation canals, the initial flush of recharge water after application must not be used for irrigation purposes.

## RESTRICTIONS

- **DO NOT** apply **Clearcast** to achieve a total active ingredient concentration in the water greater than 500 ppb.
- **DO NOT** apply more than 1 gallon of **Clearcast** per surface acre for the control of emergent and floating vegetation.

## Irrigation Restrictions

- **DO NOT** use treated water to irrigate greenhouses, nurseries or hydroponics until the imazamox concentration has been determined by an acceptable method to be less than or equal to 1.0 ppb.
- **DO NOT** plant sugar beets, onions, potatoes or non-CLEARFIELD® canola in soils that have been previously irrigated with **Clearcast**-treated water until a soil bioassay successfully demonstrates acceptable levels of crop tolerance. The only exception to this restriction is if the water is from foliar applications to emergent and/or floating vegetation in flowing water sites where it has been applied at less than or equal to 1.5 quarts per acre to waters with an average depth of greater than or equal to 4 feet.
- **DO NOT** use **Clearcast**-treated waters resulting in a concentration greater than 50 ppb for irrigation of established (emerged) plants until residue levels have been shown to be less than or equal to 50 ppb by an acceptable method.
- **DO NOT** make **Clearcast** applications in and around golf course irrigation, sod farm irrigation, and vineyard irrigation waterbodies without testing potential irrigation water prior to irrigation and confirming the imazamox concentration to be less than or equal to 1.0 ppb.
- In still or quiescent waters, do not use **Clearcast**-treated water resulting in a concentration greater than 10 ppb for irrigation of newly seeded or newly established plants until residue levels have been shown to be less than or equal to 10 ppb by an acceptable method.
- Wait 24 hours before irrigating from still or quiescent waters after making a **Clearcast** application for submerged vegetation less than 100 feet from an irrigation intake.
- Wait 24 hours before irrigating from still and quiescent waters after making a **Clearcast** application to emergent and/or floating vegetation if greater than 25% of the surface area of the water body has been treated or application was made less than 100 feet from an irrigation intake.
- Flowing waters may be used to irrigate allowable sites with no restrictions when **Clearcast** is applied at less than or equal to 2 quarts per acre to waters with an average depth of greater than or equal to 4 feet.
- After application of **Clearcast** to dry irrigation canals/ditches, the initial flush of water during recharge must not be used for irrigation purposes unless the imazamox concentration has been determined by an acceptable method to be less than 25 ppb.

**Clearcast** applied at less than or equal to 2 quarts per acre in or on waters with a minimum average depth greater than or equal to 4 feet will result in **Clearcast** concentrations less than 50 ppb.

## Other Water Use Restrictions

There are no restrictions on livestock watering, swimming, fishing, domestic use, or use of treated water for agricultural sprays.

## Potable Water

**Clearcast** may be applied to potable water sources at concentrations up to 500 ppb to within a distance of ¼ mile from an active potable water intake. Within ¼ mile of an active potable water intake, **Clearcast** may be applied, but water concentrations resulting from injection and/or foliar applications may not exceed 50 ppb. If water concentrations greater than 50 ppb are required, the potable water intake must be shut and, if necessary, an alternate water supply be made available until the water concentration can be shown to be less than 50 ppb by an acceptable method.

## Endangered Plant Species

To prevent potential negative impacts to endangered plant species, **DO NOT** apply **Clearcast** in a way that adversely affects federally listed endangered and threatened species.

## WEEDS CONTROLLED OR SUPPRESSED BY CLEARCAST

Efficacy and selectivity of **Clearcast** is dependent upon many factors including: dose, time of year, stage of plant growth, plant susceptibility, method of application, and water movement. Rate selection will be partially dependent on characteristics of the treatment area and whether growth regulation or control is desired. Some areas may require a repeat application to control or suppress regrowth. Consult SePRO Corporation to determine best treatment protocols to manage individual species and to meet specific aquatic plant management objectives.

Emergent, Floating, and Shoreline Species Controlled with Foliar Application			
Common Name	Scientific Name	Rate (fl ozs/A)	Comments
Alligatorweed	<i>Alternanthera philoxeroides</i>	64 to 128	Repeat applications may be necessary. Add 1 qt/A of AquaPro® herbicide for quicker brownout.
American lotus	<i>Nelumbo lutea</i>	64 to 128	
Arrowhead	<i>Sagittaria</i> spp.	32 to 64	
Cattail	<i>Typha</i> spp.	32 to 64	Apply after full green up through killing frost.
Chinese tallowtree	<i>Sapium sebiferum</i>	64 to 128	
Common reed	<i>Phragmites</i> spp.	96 to 128	Use 1 qt/A methylated seed oil (MSO); apply in late vegetative stage up to killing frost. Also apply as a spot treatment using 1% to 2% <b>Clearcast</b> per spray volume. Older stands of phragmites and stands growing in water may be more difficult to control and will require follow-up applications.
Common salvinia	<i>Salvinia minima</i>	32 to 64	Apply with MSO or MSO + silicone-based surfactant; retreatment will be necessary.
Floating heart	<i>Nymphoides</i> spp.	64 to 128	Also apply as a spot treatment using 2% to 5% <b>Clearcast</b> and 1% MSO per spray volume.
Floating pennywort	<i>Hydrocotyle ranunculoides</i>	32 to 64	Repeat applications may be necessary.
Flowering rush	<i>Butomus umbellatus</i>	64 to 128	
Four-leaf clover	<i>Marsilea</i> spp.	32 to 64	
Frog's bit, Sponge plant	<i>Lymnobia</i> spp.	16 to 32	
Giant cane	<i>Arundo donax</i>	64 to 128	
Japanese knotweed	<i>Polygonum cuspidatum</i>	64 to 128	
Mexican lily	<i>Nymphaea mexicana</i>	32 to 64	
Mosquito fern	<i>Azolla</i> spp.	—	Apply using 2% to 5% <b>Clearcast</b> and 1% MSO by volume.
Parrotfeather	<i>Myriophyllum aquaticum</i>	64 to 128	Apply only to emergent vegetation.
Pickelweed	<i>Pontederia cordata</i>	32 to 64	
Saltcedar	<i>Tamarix</i> spp.	64 to 128	Also apply using 2% to 5% <b>Clearcast</b> and 1% MSO per spray volume.
Smartweed, ladysthumb Smartweed, Pennsylvania Smartweed, swamp	<i>Polygonum persicaria</i> , <i>Persicaria maculosa</i> <i>Polygonum pensylvanicum</i> , <i>Persicaria pensylvanica</i> <i>Polygonum coccineum</i> , <i>Persicaria amphibia</i>	64 to 128	
Spatterdock	<i>Nuphar lutea</i>	64 to 128	
Variable-leaf milfoil	<i>Myriophyllum heterophyllum</i>	64 to 128	Apply with MSO (1% v/v) as an emergent foliar treatment when plants have emerged on the surface. Also apply as a spot treatment using 1% to 3% <b>Clearcast</b> per spray volume.
Water chestnut	<i>Trapa natans</i>	64 to 128	Apply with MSO to emergent part of plant. Also apply as a spot treatment using 2% to 5% <b>Clearcast</b> per spray volume.
Water hyacinth	<i>Eichhornia crassipes</i>	16 to 32	
Water lettuce	<i>Pistia stratiotes</i>	48 to 96	
Water lily	<i>Nymphaea</i> spp.	32 to 64	
Water primrose	<i>Ludwigia</i> spp.	32 to 64	Add 1 qt/A of AquaPro® herbicide for quicker brownout.
Watershield	<i>Brasenia schreberi</i>	48 to 64	
Wild taro	<i>Colocasia esculenta</i>	96 to 128	

### Species Susceptible to Water-injected Applications

The following categories are provided to define species that may be growth regulated or controlled with 50 to 500 ppb **Clearcast® herbicide** following in-water applications: susceptible, moderately susceptible, and less susceptible. The rates associated with each susceptibility category, including the **Special Weed Control** section, are provided as guidance with the overriding allowance that an application rate from 50 to 500 ppb may be used depending on the aquatic vegetation management objective and the characteristics of the aquatic vegetation and water body being treated.

Some species that are susceptible to foliar applications of **Clearcast** may be less susceptible to in-water applications. Use of higher rates are necessary to achieve desired control/suppression in areas of greater water exchange; when treating more mature or less susceptible plants; when targeting more difficult-to-control aquatic species; and when treating small areas in larger

bodies of water (partial or spot treatments). Lower concentrations are generally used when conducting early season large-scale treatments; when greater selectivity is desired; and treating larger areas, more immature or susceptible plants, and areas with less potential for rapid water exchange.

Use of lower rates may increase selectivity on some species within the same category. Effects on susceptible plants can range from control to growth regulation depending on treatment site characteristics, exposure time, and application rate. Susceptible plant species may exhibit herbicide stress or reduced growth during active treatment phases. Whole lake applications with lower rates may provide plant growth regulation or greater selectivity while higher rates will generally provide broader activity.

## Susceptible Vascular Aquatic Plants (50 to 200 ppb)

Common Name	Scientific Name
Curlyleaf pondweed	<i>Potamogeton crispus</i>
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
Hydrilla	<i>Hydrilla verticillata</i>
Sago pondweed	<i>Stuckenia pectinata</i>
Water hyacinth	<i>Eichhornia crassipes</i>
Water stargrass	<i>Heteranthera dubia</i>

## Moderately Susceptible Vascular Aquatic Plants (100 to 300 ppb)

Common Name	Scientific Name
American pondweed	<i>Potamogeton nodosus</i>
Bladderwort	<i>Utricularia</i> spp.
Frog's bit	<i>Lymnobium spongia</i>
Illinois pondweed	<i>Potamogeton illinoensis</i>
Pickeralweed	<i>Pontederia cordata</i>
Salvinia	<i>Salvinia</i> spp.
Spikerush	<i>Eleocharis baldwinii</i>
Variable-leaf milfoil	<i>Myriophyllum heterophyllum</i>
Wigeon grass	<i>Ruppia maritima</i>

## Less Susceptible Vascular Aquatic Plants (200 to 500 ppb)

Common Name	Scientific Name
Bulrush	<i>Schoenoplectus californicus</i>
Cattail	<i>Typha</i> spp.
Coontail	<i>Ceratophyllum demersum</i>
Eelgrass, Japanese	<i>Zostera japonica</i>
Egeria	<i>Egeria densa</i>
Flowering rush	<i>Butomus umbellatus</i>
Southern naiad	<i>Najas guadalupensis</i>
Spatterdock	<i>Nuphar lutea</i>
Water lily	<i>Nymphaea odorata</i>
Watershield	<i>Brasenia schreberi</i>

## Special Weed Control

**Eurasian Watermilfoil.** Apply **Clearcast herbicide** at 100 to 200 ppb to actively growing plants early in the growing season. Applications made to mature Eurasian watermilfoil (vegetation topped out) may require multiple applications.

**Hydrilla.** Apply **Clearcast** at 150 to 200 ppb to actively growing plants early in the growing season. Applications made prior to topped-out hydrilla may require repeat application. A single application of 50 to 75 ppb can be used to suppress and growth-regulate hydrilla for up to 10 to 12 weeks. If desired, an additional 50 to 75 ppb can be applied to extend the period of growth suppression when normal hydrilla growth resumes.

**Japanese Eelgrass.** Japanese eelgrass is a submerged aquatic plant which can be found in tidal and intertidal areas. **Clearcast herbicide** may be applied directly to the water or directly to the plant (e.g. at low tide).

• **Low-tide application** - To make applications when the plant is exposed at low tide, uniformly apply with properly calibrated broadcast or spot treatment equipment in 10 or more gallons of water per acre. An appropriate spray adjuvant approved for aquatic use may be used but is not required. Spot treatments can be made with up to 5% **Clearcast** by volume. To ensure thorough spray coverage, higher spray volumes may be required when treating areas with large and/or dense vegetation. Use an appropriate spray pressure to minimize drift potential depending upon spray equipment, conditions, and application objectives. Apply 4 fl ozs to 32 fl ozs **Clearcast/A**. Use the lower rate for management of seedlings. An appropriate aquatic use spray adjuvant may be used but is not required.

• **In-water application** - When Japanese eelgrass is submerged, **Clearcast** may be broadcast-applied to the water surface or injected below the water surface. **Clearcast** may be applied as undiluted product or diluted with water before application. Under surface-matted conditions, inject **Clearcast** below the water surface to achieve better product distribution. Apply **Clearcast** to water to achieve a final concentration of the active ingredient of no more than

500 ppb. Multiple applications of **Clearcast** may be made during the annual growth cycle to maintain the desired vegetation response.

**Sago Pondweed.** In dry ditches (drainage and irrigation), sago pondweed may be controlled or growth-suppressed with soil-applied **Clearcast** at 64 to 128 fl ozs/A. In irrigation canals, apply **Clearcast** after drawdown and prior to water recharge.

## TERRESTRIAL USE DIRECTIONS

### Restrictions

- The maximum amount of active ingredient that can be applied is 1 gallon (equivalent to 1 pound of active ingredient as the free acid) per acre per year.
- DO NOT** exceed 2 applications of **Clearcast** per year.

**Clearcast** may be applied with ground and aerial equipment including both fixed-wing aircraft and helicopter. Applications may be made using foliar broadcast spray, foliar spot spray, injection (hack and squirt), frill and girdle, cut stump, or basal methods.

### Broadcast Spray Application

**DO NOT** apply more than 1 gallon of **Clearcast** per acre per year.

### Foliar Spot Application

Apply **Clearcast** as a percent solution, containing up to 5% **Clearcast** by volume.

### Injection (Hack and Squirt), Frill and Girdle, and Cut Stump Application

Treatments may be made using up to 100% **Clearcast** by volume.

### Basal Application

Treatments can be made using up to 25% **Clearcast** by volume. Basal applications require the use of a good emulsion system to maintain **Clearcast** in a stable emulsion with the penetrating agent being used.

All foliar applications of **Clearcast** require the use of a spray adjuvant. Refer to *Spray Adjuvants* section for additional information.

### Managing Off-target Movement

The following information is general guidance for managing and minimizing off-target exposure of this product. Specific use directions in this label may vary from these general guidelines depending on the application method and objectives and should supersede the information provided below.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-related and weather-related factors determines 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:

- The distance of the outermost nozzles on the boom must not exceed  $\frac{3}{4}$  the length of the fixed wingspan or 90% of rotor blade diameter.
- Nozzles must always point backward parallel with the airstream and never be pointed downward more than 45 degrees.
- DO NOT** apply if wind speed is greater than 10 mph, except when making injection or subsurface applications to water.

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 following aerial drift reduction advisory information.

### Information on 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 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. For many nozzle types, lower pressure produces larger droplets. 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 provides uniform coverage.

- **Nozzle Orientation** - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is recommended practice. Significant deflection from the 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 ¾ of the fixed wingspan or 90% of rotor blade diameter 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 upwind and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller droplets, 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. Application must be avoided below 2 mph due to variable wind direction and high inversion potential.

**NOTE:** Local terrain can influence wind patterns. Every applicator must 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

Applications must not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing that 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 concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

### Sensitive Areas

The pesticide must only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, or crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

To the extent consistent with the applicable law, applicator is responsible for any loss or damage which results from spraying **Clearcast** in a manner other than directed in this label. In addition, applicator must follow all applicable state and local regulations and ordinances in regard to spraying.

**Clearcast** may be used for the control of the following plant species. **Clearcast** may be effective for the control or suppression of additional plant species not listed below. The use of **Clearcast** for the control or suppression of undesirable plants not listed below may be done at the discretion of the user.

**To the extent consistent with applicable law, the user assumes responsibility for any lack of control or suppression associated with application to weeds not listed on this label.**

Common Name	Scientific Name	Weeds Controlled	
		Rate Foliar (fl ozs/A)	Comments
Alligator weed	<i>Alternanthera philoxeroides</i>	64 to 128	Addition of AquaPro® herbicide will improve efficacy.
Annual ryegrass	<i>Lolium multiflorum</i>	16 to 32	
Artichoke, Jerusalem	<i>Helianthus tuberosus</i>	64 to 128	
Bedstraw	<i>Galium aparine</i>	64 to 128	
Beet, wild	<i>Beta procumbens</i>	64 to 128	
Brazilian pepper* Christmasberry*	<i>Schinus terebinthifolius</i>	96 to 128	Also apply using 2% to 5% Clearcast per spray volume
Buckwheat, wild	<i>Polygonum convolvulus</i>	64 to 128	
Buttercup	<i>Ranunculus</i> spp.	64 to 128	
California bulrush*	<i>Schoenoplectus californicus</i>	64 to 128	
Camphor tree*	<i>Cinnamomum camphora</i>	2% to 5% v/v	
Canola, volunteer (non- <b>Clearfield</b> ®)	<i>Brassica campestris</i> <i>Brassica napus</i>	64 to 128	
Cattail	<i>Typha</i> spp.	32 to 64	
Chickweed, common	<i>Stellaria media</i>	64 to 128	
Chinese tallowtree; Popcorn tree	<i>Sapium sebiferum</i>	64 to 128	See Special Weed Control section.
Cocklebur, common	<i>Xanthium strumarium</i>	64 to 128	
Filaree, redstem Filaree, whitestem	<i>Erodium cicutarium</i> <i>Erodium moschatum</i>	64 to 128	
Flixweed	<i>Descurainia sophia</i>	64 to 128	
Giant ragweed**	<i>Ambrosia trifida</i>	32 to 64	
Henbit	<i>Lamium amplexicaule</i>	64 to 128	
Jamaican nightshade*	<i>Solanum jamaicense</i>	2% to 5% v/v	
Japanese stiltgrass	<i>Microstegium vimineum</i>	32 to 64	Use MSO at 1% by spray volume. Clearcast will provide some residual control of subsequent seedling emergence.
Jimsonweed	<i>Datura stramonium</i>	64 to 128	

continued

Weeds Controlled (continued)			
Common Name	Scientific Name	Rate Foliar (fl ozs/A)	Comments
Johnsongrass, rhizome Johnsongrass, seedling	<i>Sorghum halepense</i>	32 to 64 16 to 32	
Knotweed, prostrate	<i>Polygonum aviculare</i>	64 to 128	
Kochia	<i>Kochia scoparia</i>	64 to 128	
Lambsquarters, common	<i>Chenopodium album</i>	64 to 128	
Lettuce, miner's	<i>Montia perfoliata</i>	64 to 128	
Mallow, common Mallow, Venice	<i>Malva neglecta</i> <i>Hibiscus trionum</i>	64 to 128	
Mustard spp.	<i>Brassica</i> spp.	64 to 128	
Nettle, burning	<i>Urtica urens</i>	64 to 128	
Nettleleaf goosefoot	<i>Chenopodium murale</i>	64 to 128	
Nightshade, black Nightshade, Eastern black Nightshade, hairy	<i>Solanum nigrum</i> <i>Solanum ptycanthum</i> <i>Solanum sarrachoides</i>	64 to 128	
Old world climbing fern*	<i>Lygodium microphyllum</i>	5% v/v	
Pennycress, field	<i>Thlaspi arvense</i>	64 to 128	
Phragmites*	<i>Phragmites australis</i>		Use 1 qt/A methylated seed oil (MSO); apply in late vegetative stage up to killing frost. Also apply as a spot treatment using 1% to 2% Clearcast per spray volume. Older stands of phragmites and stands growing in water may be more difficult to control and will require follow-up applications.
Pigweed, prostrate Pigweed, redroot Pigweed, smooth Pigweed, spiny	<i>Amaranthus blitoides</i> <i>Amaranthus retroflexus</i> <i>Amaranthus hybridus</i> <i>Amaranthus spinosus</i>	64 to 128	
Puncturevine	<i>Tribulus terrestris</i>	64 to 128	
Purple loosestrife*	<i>Lythrum salicaria</i>	32 to 64	
Purslane, common	<i>Portulaca oleracea</i>	64 to 128	
Radish, wild	<i>Raphanus raphanistrum</i>	64 to 128	
Ragweed, common Ragweed, giant	<i>Ambrosia artemisiifolia</i> <i>Ambrosia trifida</i>	64 to 128	
Rocket, London Rocket, yellow	<i>Sisymbrium irio</i> <i>Barbarea vulgaris</i>	64 to 128	
Saltcedar*	<i>Tamarix</i> spp.	64 to 128	Also apply using 2% to 5% Clearcast and 1% MSO per spray volume.
Sedge*, purple Sedge*, yellow	<i>Cyperus rotundus</i> <i>Cyperus esculentus</i>	32 to 64	Also apply using 2% to 5% Clearcast per spray volume.
Shepherd's-purse	<i>Capsella bursa-pastoris</i>	64 to 128	
Smartweed, ladythumb Smartweed, Pennsylvania Smartweed, swamp	<i>Polygonum persicaria</i> , <i>Persicaria maculosa</i> <i>Polygonum pennsylvanicum</i> , <i>Persicaria pennsylvanica</i> <i>Polygonum coccineum</i> , <i>Persicaria amphibia</i>	64 to 128	
Spike rush*	<i>Eleocharis</i> spp.	64 to 128	
Spurge, prostrate	<i>Euphorbia maculata</i>	64 to 128	
Sunflower, common	<i>Helianthus annuus</i>	64 to 128	
Swinecress	<i>Coronopus didymus</i>	64 to 128	
Tansymustard, green	<i>Descurainia pinnata</i>	64 to 128	
Taro	<i>Taro</i> spp.	64 to 128 5% v/v	
Thistle, Russian	<i>Salsola iberica</i>	64 to 128	
Tropical soda apple*	<i>Solanum viarum</i>	2% to 5% v/v	
Water primrose	<i>Ludwigia</i> spp.	32 to 64	Addition of <b>AquaPro® herbicide</b> will improve efficacy.
Wetland nightshade*	<i>Solanum tampicense</i>	2% to 5% v/v	
Whitetop* Hoary cress*	<i>Cardaria draba</i>	8 to 16	
Willoweed panicle	<i>Epilobium brachycarpum</i>	64 to 128	
Velvetleaf	<i>Abutilon theophrasti</i>	64 to 128	

\* Use not permitted in California unless otherwise directed by supplemental labeling

\*\* Suppression of larger, well-established plants

In general, the use of methylated seed oil (MSO) at 1% v/v will provide the best control with foliar applications.

### Special Weed Control - Chinese tallowtree

**Clearcast** at 64 to 128 fl ozs/A or 0.5 to 2.0% v/v may be applied as a foliar application for selective control of Chinese tallowtree in and around tolerant tree species. Control Chinese tallowtree with foliar applications using aerial, handgun, or backpack application methods. When treating Chinese tallowtree, ensure that application method and spray volume provide adequate coverage of targeted Chinese tallowtree plants. Add methylated seed oil at 32 fl ozs/A for broadcast applications, or at 1% v/v for spot backpack and handgun applications. Tolerant hardwood species may exhibit varying degrees of leaf discoloration and temporary injury.

### Areas that may be Grazed or Cut for Hay

Apply **Clearcast** to listed aquatic and terrestrial noncrop sites that may be grazed or cut for hay at a maximum use rate of 1 gallon per acre of **Clearcast** or 5% (v/v) spray solution for spot treatments. There are no grazing or haying restrictions.

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