

MUNICIPAL YEARLY OPERATIONAL PLAN

VEGETATION MANAGEMENT CONTROL PLAN

TOWN OF SOUTHBRIDGE

2012

Prepared and submitted by:

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Public Works Department
Town of Southbridge
185 Guelphwood Rd.
Southbridge, MA. 01550

February 1, 2012

MUNICIPAL YEARLY OPERATIONAL PLAN

This Yearly Operational Plan approved by the Massachusetts Department of Agriculture Resources pursuant to the Rights-of-Way Management Regulations (333 CMR 11.00), has been adopted by the following Vegetation Management Program of the Town of Southbridge. The undersigned hereby acknowledges the conditions of the Municipal Roadway Vegetation Management Plan will be adopted and complied with.

MUNICIPALITY: Town of Southbridge

NAME: Ronald Trudeau

AGENCY: Southbridge Public Works Department

ADDRESS: 185 Guelphwood Rd.
Southbridge, MA 01550

TELEPHONE: (508) 764-5403

SIGNATURE: *Ronald E. Trudeau*

DATE 2/1/12

WETLAND DELINEATION: _____
(Conservation Commission)

Massachusetts Department of Agriculture Resources , Pesticide Bureau, Right of Way Program, 251 Causeway Suite 500,
Boston, Massachusetts 02114-2151.

INTRODUCTION

The purpose of 333 CRM 11.00, Rights of Way Management, is to promote the implementation of integrated pest management techniques and to establish standards requirements and procedures necessary to minimize the rash of unreasonable adverse effects on human health and the environment associated with the use of herbicides to maintain streets. These regulations establish procedure, which guarantee ample opportunity for public and municipal agency review and input on the right-of-way maintenance plans.

A yearly Operational Plan or YOP must be submitted to the Department of Agriculture Resources every year herbicides are intended for use to maintain Right of Ways. The YOP provides a detailed program for vegetation management for the year. A five-year Vegetation Management Plan (VMP) has been approved by the Department and is available for review at the Board of Health, Conservation Commission, and office of the Chief-elected official of the municipality.

Upon receipt of this YOP, the Department publishes a notice in the Environmental Monitor. The applicant must provide a copy of the proposed YOP and Environmental Monitor notice to the Board of Health, Conservation Commission, and the Chief-elected municipal official for the city or town in which the herbicide treatment is proposed. The Department allows a 45-day comment period on the proposed YOP beginning with publication of the notice in the Environmental Monitor and receipt of the YOP and Environmental Monitor notice by each municipality.

Public notification and herbicide application to the streets is made at least 21 days in advance of the treatment by a separate notice. Notice is made to the Department of Agriculture Resources, the Mayor, City Manager or chairman of the Board of Selectman, the Board of Health, a Conservation Commission , and the water division of the municipality where the streets lie. Any comments on this YOP should be directed to the contact person listed on page 6.

TABLE OF CONTENTS

	Page
I. Individual Supervising YOP	7
II. The Municipal Department which will perform any herbicide treatment	8
III. Herbicides proposed, including application rates, carriers, Adjuvants	9
IV. Herbicide application techniques and alternative control Procedures	10
V. Identification of target vegetation	11
VI. Flagging methods to designate sensitive areas on the ROW	12
VII. Procedures and locations for handling, mixing, and Loading of herbicide concentrates	12
VIII. Emergency Contacts	14

APPENDICES

- A. Streets to be treated in 2012
- B. Herbicide Fact Sheets as approved by the Department
- C. Sensitive area material list
- D. Sensitive area Restriction Guide (333 CMR 11.04)
- E. Map locating streets in Southbridge

I. Individual supervising implementation and conditions of the YOP

Name and Title: Ronald E. Trudeau Jr.
Public Works Operations Manager

Department: Department of Public Works
Address: Town Hall
185 Guelphwood Rd.
Southbridge, MA 01550

Telephone Number: (508) 764-5403

Signature: 

II. Municipal Department Performing Herbicide Treatment

Southbridge Public Works Department.

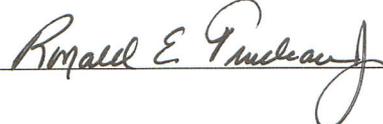
Municipal employees will perform herbicide treatment under the direct supervision of Ronald E. Trudeau Jr. Operations Manager -D.P.W. Applicators are certified by the Department of Agriculture Resources in the applicator category.

Name and Title: Ronald E. Trudeau Jr. Public Works Operations Manager
License Number: 17093 Categories: # 37 Turf and #
40 Right of Way

Company: Town of Southbridge Department of Public Works

Address: 185 Guelphwood Rd.
Southbridge, MA. 01550

Telephone Number: (508) 764-5403

Signature:  _____

III. Herbicides Proposed including Application Rates, Carriers, Adjuvants

Herbicides that may be used on municipal roadways are limited to the following:

<u>Trade Name</u>	<u>EPA Reg. No.</u>	<u>Active Ingredients</u>	<u>Guidelines</u>
Razor Pro	228-366	Glyphosate	See Attached

The names and the active ingredients of the herbicides proposed and the names of any carriers, adjuvants or additives to be used. Herbicide Fact Sheets for the herbicides proposed are found in Appendix A.

<u>Control Method</u>	<u>Herbicide(s) Mixture %</u>	<u>Carriers or Adjuvants</u>	<u>Application Rate/Acre</u>
Foliar Treatment	2 oz/gal 3%	NA	NA

Control Method will be one of the following: hand cutting, mowing, foliar treatments, cut stump treatment, or selective trimming.

Cut stump treatment will be used when woody vegetation is persistent along hard to get areas such as guardrail. Woody vegetation such as small trees or resprouts will be cut close to soil surface. Application of Razor Pro would be applied to the entire cambium to ensure coverage at a rate of 50% solution using a squeeze bottle applicator. Application will be made right after the cut to the vegetation when it is in a actively growing state for best results.

IV. Herbicide Application Techniques and Alternative Control Applications

Roadway vegetation management will involve mechanical methods (sweeping, hand cutting, selective trimming and mowing) and chemical control (foliar herbicide treatments and cut stump treatments). The particular method(s) chosen will be based on a variety of factors to establish an easily maintainable plant population that will not interfere with vehicles or pedestrians. Emphasis will be given to the control tactic that will address the vegetation problems in the most environmentally sound manner and in a way to minimize vegetation control in the long term. The method chosen for given vegetation problems will attempt to achieve a long term, low maintenance vegetation management program.

Chemical controls include foliar treatments. Mechanical controls hand cutting, mowing and selective trimming. Refer to pages 6 & 7 of the VMP for detailed descriptions of these techniques.

V. Identification of Target Vegetation

Target Vegetation along roadways is limited to vegetation, which poses a public nuisance and /or poses a risk to pedestrian or vehicular safety. Target vegetation and control methods intended are indicated below. For a full description of each target vegetation, refer to the VMP.

<u>Target Vegetation</u>	<u>Mechanical Control</u>	<u>Chemical</u>
<u>Control</u>		
Public Nuisance Vegetation poison ivy and other poisonous vegetation growing within 10 foot of roadway		low volume low pressure foliar spray
Nuisance Grass - stem density and height impedes movement or hampers visibility	selective trimming and mowing	low volume low pressure foliar spray
Vegetation Posing a Risk to Safety		
Vegetation hampers visibility or impedes movement along roads and trails	hand cutting and selective trimming	low volume low pressure foliar spray

VI. Flagging Methods to Designate Sensitive Areas on the ROW

Sensitive areas are identified as public ground water supplies, public surface water supplies, private drinking water supplies, surface waters, wetlands, inhabited areas and agricultural areas. For the purpose of identification, sensitive areas are separated into two categories, areas not readily identifiable in the field, and areas that are identifiable in the field.

Sensitive areas not readily identifiable in the field typically include public groundwater supplies, wetlands, private water supplies and public surface water supplies. In the case of Southbridge, there are no public groundwater supplies. The town is served by a public surface water supply located in the south-western portion of the town. The public ways within the watershed are Eastford Road south of Dennison Drive, and Breakneck Road south of Dennison Crossroad. These roads are designated as "No Spray Zones"

The remaining areas will be flagged and marked as "No Spray Zones" in the following manner:

FLAGGING METHODS

Orange pavement marking paint will be used to identify "No spray zones" on pavement, granite curbing and sidewalks. They will be marked with an orange line and the letters NSZ.

Qualified SDPW personnel will flag the no spray zones prior to any spraying operation. Crews will be provided with street maps with no spray zones clearly marked.

Process of sensitive areas:

1. Areas to be sprayed were walked to determine sensitive areas
2. Questionable wetland areas will be checked by the Conservation Commission.
3. Board of Health records will be reviewed to locate wells of older homes in areas not served by the public water supply system that do not conform to today's stringent setback requirements. Homeowners were contacted in cases where no records were available.

VII. Procedures and Locations for Handling Mixing and Loading of Herbicide Concentrates

All mixing and loading of herbicides will be conducted at the Operations garage. Only the amount of herbicide necessary as determined by monitoring results will be mixed to carry out the vegetation control. The vehicle carrying out the spray operation will be equipped with a bag of absorbent, activated charcoal, leak-proof containers, a broom and a shovel in case of minor spills. A clipboard log of the herbicides carried on the vehicle will be kept in the vehicle. Herbicide labels and fact sheets should be carried on-site by the applicator.

As soon as any spill is observed, immediate action will be taken to contain the spill and protect the spill area. The cause of the spill will be identified and secured. Spill containment will be accomplished by covering the spill with absorptive clay or other absorptive material or, for large spills, building clay or soil dikes to impede spill progress. Until completely clean, protection of the spill area will be accomplished by placing barriers, flagging or crew members at strategic locations. If a fire is involved, care will be taken to avoid breathing fumes from any burning chemicals and the Fire Department notified.

Minor spills will be remedied by soaking up the spill with absorptive clay or other absorptive material and placing it in leak-proof containers for proper disposal. Dry herbicide, such as granulars, will be swept up or shoveled up directly in leak-proof containers for proper disposal. All contaminated soil will be placed in leak-proof containers, removed from the Site, and disposed of properly. Activated charcoal will be incorporated into the soil at the spill location at a rate of seven pounds per thousand square feet to inactivate any herbicide residue. Any minor spill will be reported to the Pesticide Bureau.

Major spills will be handled in a similar manner as minor spills, except in cases where the spill cannot be contained and/or removed by the crew. In this case, the DEP Incident Response Unit and Pesticide Bureau will be contacted.

VIII. Emergency Contacts

In the event of a spill or emergency, information on safety precautions clean-up procedures may be gathered from the following sources: -

Herbicide Label

Herbicide Fact Sheet

Herbicide Material Safety Data Sheet Herbicide Manufacturer

Nufarm Americas Inc.	(877)325-1840
Agrevo USA Co.	(800) 471-0660
Massachusetts Pesticide Bureau	(617) 626-1781
Massachusetts Department of Environmental Protection	(617) 292-5500
Chemtrec	(800) 424-9300
EPA Pesticide Hotline	(800) 858-7378
Massachusetts Poison Control Center	(800) 682-9211
Local Police	911
Local Fire	911

APPENDICES

A. Streets to be treated in 2012

MAIN ST.
ELM ST.
EVERETT ST.
FOSTER ST.
CENTRAL ST.
HAMILTON ST.
GODDARD ST.
CHAPIN ST.
MARCY ST.
SOUTH ST.
WEST ST.
HIGH ST.
DRESSER ST.
MECHANIC ST.
WORCESTER ST.
CHARLTON ST.
EASTFORD RD.
WOODSTOCK RD.
PLEASANT ST.
GUELPHWOOD RD.
HOOK ST.

DUDLEY RIVER RD.
DRESSER HILL RD.
PAIGE HILL
CLIFF ST.
NORTH ST.
CRYSTAL ST.
PARK ST.
SUMMER ST.
PINE ST.
EDWARDS ST.
FRANKLIN TERRACE
BLACKMERE RD.
COOMBS ST.
BREAKNECK RD.
LAROCHELLE WAY
GOLF ST.
LOVELY ST.
HILLTOP DR.
HARTWELL ST.

B. Herbicide Fact Sheets (attached)

- 1) Mass Department of Agriculture Resources (6 pages)
- 2) Razor Pro herbicide (16 pages)
- 3) Sensitive area restrictions guide (333 CMR 11.04)

C. Town Map (1 Page)

THE COMMONWEALTH OF MASSACHUSETTS

EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS



Department of Agricultural Resources

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GLYPHOSATE

In addition to the review that is presented below, a comprehensive review available from USDA Forest Service provides information that incorporates more recent studies and data. The US Forest Service risk assessment report is available at: <http://www.fs.fed.us/foresthealth/pesticide/risk.shtml>

Review conducted by MDAR and MassDEP for use in Sensitive Areas of Rights-of-Way in Massachusetts

Common Trade Name(s): Roundup, Glyphosate VMF Round Up Pro, Rodeo, Accord, Accord Concentrate,

Chemical Name: N—(phosphonomethyl)glycine—isopropylamine salt

CAS No.: 1071-83-6

GENERAL INFORMATION

Glyphosate, n-phosphonomethyl glycine, is a systemic, broad spectrum herbicide effective against most plant species, including deep rooted perennial species, annual and biennial species of grasses, sedges, and broadleafed weeds. The major pathway for uptake in plants is through the foliage, however, some root uptake may occur. The presence of surfactants and humidity increases the rate of absorption of glyphosate by plants (15).

Foliarly applied glyphosate is readily absorbed and translocated from treated areas to untreated shoot regions. The mechanism of herbicidal action for glyphosate is believed to be inhibition of amino acid biosynthesis resulting in a reduction of protein synthesis and inhibition of growth (10, 15, 101).

Glyphosate is generally formulated as the isopropylamine salt in aqueous solution (122). Of the three products containing glyphosate considered here, Roundup is sold with a surfactant and Rodeo and Accord are mixed with surfactants prior to use (15). Glyphosate has been reviewed by US Forest Service (15), FAO (122), and EPA 00W (51).

ENVIRONMENTAL FATE

Mobility

Glyphosate is relatively immobile in most soil environments as a result of its strong adsorption to soil particles. Adsorption to soil particles and organic matter begins almost immediately after application. Binding occurs with particular rapidity to clays and organic matter (15). Clays and organic matter saturated with iron and aluminum (such as in the Northeast) tend to absorb more glyphosate than those saturated with sodium or calcium. The soil phosphate level is the main determinant of the amount of glyphosate adsorbed to soil particles. Soils which are low in phosphates will adsorb higher levels of glyphosate (14, 15).

Glyphosate is classified as immobile by the Helling and Turner classification system. In soil column leaching studies using aged (1 month) Glyphosate, leaching of glyphosate was said to be insignificant after 0.5 inches of water per day for 45 days (14).

Persistence

It has been reported that glyphosate dissipates relatively rapidly when applied to most soils (14). However, studies indicate that the soil half-life is variable and dependent upon soil factors. The half-life of glyphosate in greenhouse studies when applied to silty clay loam, silt loam, and sandy loam at rates of 4 and 8 ppm was 3, 27 and 130 days respectively, independent of application rate (14). An average half-life of 2 months has been reported in field studies for 11 soils (15).

Glyphosate is mainly degraded biologically by soil micro-organisms and has a minimal effect on soil microflora (15). In the soil environment, glyphosate is resistant to chemical degradation such as hydrolysis and is stable to sunlight (15). The primary metabolite of glyphosate is aminomethyl phosphonic acid (AMPA) which has a slower degradation rate than glyphosate (15). The persistence of AMPA is reported to be longer than glyphosate, possibly due to tighter binding to soil (14). No data are available on the toxicity of this compound.

Glyphosate degradation by microorganisms has been widely tested in a variety of field and laboratory studies. Soil characteristics used in these studies have included organic contents, soil types and pHs similar to those that occur in Massachusetts (117).

Glyphosate degradation rates vary considerably across a wide variety of soil types. The rate of degradation is correlated with microbial activity of the soils and does not appear to be largely dependent on soil pH or organic content (117). While degradation rates are likely temperature dependent, most reviews of studies do not report or discuss the dependence of degradation rate on temperature. Mueller et al. (1981 cited in 117) noted that glyphosate degraded in Finnish agricultural soils (loam and fine silt soils) over the winter months; a fact which indicates that degradation would likely take place in similar soils in the cool Massachusetts climate. Glyphosate half-lives for laboratory experiments on sandy loam and loamy sand, which are common in Massachusetts, range up to 175 days (117). The generalizations noted for the body of available results are sufficiently robust to incorporate conditions and results applicable to glyphosate use in Massachusetts.

TOXICITY REVIEW

Acute (Mammalian)

Glyphosate has reported oral LD50s of 4,320 and 5,600 mg/kg in male and female rats (15,4). The oral LD50s of the two major glyphosate products Rodeo and Roundup are 5,000 and 5,400 mg/kg in the rat (15).

A dermal LD50 of 7,940 mg/kg has been determined in rabbits (15,4). There are reports of mild dermal irritation in rabbits (6), moderate eye irritation in rabbits (7), and possible phototoxicity in humans (9). The product involved in the phototoxicity study was Tumbleweed marketed by Murphys Limited UK (9). Maibach (1986) investigated the irritant and the photo irritant responses in individuals exposed to Roundup (41% glyphosate, water, and surfactant); Pinesol liquid, Johnson Baby Shampoo, and Ivory Liquid dishwashing detergent. The conclusion drawn was that glyphosate has less irritant potential than the Pinesol or the Ivory dishwashing liquid (120).

Metabolism

Elimination of glyphosate is rapid and very little of the material is metabolized (6,106).

Subchronic/Chronic Studies (Mammalian)

In subchronic tests, glyphosate was administered in the diet to dogs and rats at 200, 600, and 2,000 ppm for 90 days. A variety of toxicological endpoints were evaluated with no significant abnormalities reported (15,10).

In other subchronic tests, rats received 0, 1,000, 5,000, or 20,000 ppm (57, 286, 1143 mg/kg) in the diet for 3 months. The no observable adverse effect level (NOAEL) was 20,000 ppm (1,143 mg/kg) (115). In the one year oral dog study, dogs received 20, 100, and 500 mg/kg/day. The no observable effect level (NOEL) was 500 mg/kg (116).

Oncogenicity Studies

Several chronic carcinogenicity studies have been reported for glyphosate including an 18 month, mouse study; and a two year rat study. In the rat study, the animals received 0, 30, 100 or 300 ppm in their diet for 2 years. EPA has determined that the doses in the rat study do not reach the maximum tolerated dose (112) and replacement studies are underway with a high dose of 20,000 ppm (123). The mice received 1000, 5000 or 30,000 ppm for 18 months in their diets. These studies were non-positive (112,109). There was a non-statistically significant increase in a rare renal tumor (renal tubular adenoma (benign) in male mice (109). The rat chronic study needs to be redone with a high dose to fill a partial data gap (112). The EPA weight of evidence classification would be D: not classified (51).

Mutagenicity Testing

Glyphosate has been tested in many short term mutagenicity tests. These include 7 bacterial (including *Salmonella typhimurim* and *B. subtilis*) and 1 yeast strain *Sacchomyces cerevisiae* as well as a mouse dominant lethal test and sister chromatid exchange. The microbial tests were negative up to 2,000 mg/plate (15), as were the mouse dominant lethal and the Chinese hamster ovary cell tests. EPA considers the mutagenicity requirements for glyphosate to be complete in the Guidance for the Registration of Pesticide Products containing glyphosate (112).

The developmental studies that have been done using glyphosate include teratogenicity studies in the rat and rabbit, three generation reproduction studies in the rat, and a reproduction study in the deer mouse. (15)

Rats were exposed to levels of up to 3,500 mg/kg/d in one rat teratology study. There were no teratogenic effects at 3,500 mg/kg/d and the fetotoxicity NOEL was 1,000 mg/kg/d. In the rabbit study a fetotoxicity NOEL was determined at 175 mg/kg/d and no teratogenic effects were observed at 10 or 30 mg/kg/d in one study and 350 mg/kg/d in the other study (15). No effects were observed in the deer mouse collected from conifer forest sprayed at 2 lbs active ingredient per acre (15).

Tolerances & Guidelines

EPA has established tolerances for glyphosate residues in at least 75 agricultural products ranging from 0.1 ppm (most vegetables) to 200 ppm for animal feed commodities such as alfalfa (8).

U.S. EPA Office of Drinking Water has released draft Health Advisories for Glyphosate of 17.50 mg/L (ten day) and 0.70 mg/L (Lifetime)(51).

Avian

Two types of avian toxicity studies have been done with glyphosate: ingestion in adults and exposure of the eggs. The species used in the ingestion studies were the mallard duck, bobwhite quail, and the adult hen (chickens). The 8 day feeding LC50s in the mallard and bobwhite are both greater than 4,640 ppm. In the hen study, 1,250 mg/kg was administered twice daily for 3 days resulting in a total dose of 15,000 mg/kg. No behavioral or microscopic changes were observed (15).

Invertebrates

A variety of invertebrates (mostly arthropods) and microorganisms from freshwater, marine, and terrestrial ecosystems have been studied for acute toxic effects of technical glyphosate as well as formulated Roundup. The increased toxicity of Roundup compared with technical glyphosate in some studies indicates that it is the surfactant (MONO 818) in Roundup that is the primary toxic agent (117). Acute toxicity information may be summarized as follows:

Glyphosate (technical): Acute toxicity ranges from a 48 hr EC50 for midge larvae of 55 mg/L to a 96 hr TL50 for the fiddler crab of 934 mg/L (15).

Roundup: Acute toxicity ranges from a 48 hr EC50 for *Daphnia* of 3 mg/L to a 95 hr LC50 for catfish of 1000 mg/L (15).

Among the insects tested, the LD50 for honeybees was 100 mg/bee 48 hours after either ingestion, or topical application of technical glyphosate and Roundup. This level of experimental exposure is considerably in excess of exposure levels that would occur during normal field applications (15).

Aquatic Species (Fish) Technical glyphosate and the formulation Roundup have been tested on various fish species. Roundup is more toxic than glyphosate, and it is the surfactant that is considered to be the primary toxic agent in Roundup:

Glyphosate (technical):

Acute 96 hr LC50s range from 24 mg/L for bluegill (Dynamic test) to 168 mg/L for the harlequin fish (15).

Roundup: Acute lethal toxicity values range from a 96 hr LC50 for the fathead minnow of 2.3 mg/L to a 96 hr TL50 for rainbow trout of 48 mg/L (15).

Tests with Roundup show that the egg stage is the least sensitive fish life stage. The toxicity increases as the fish enter the sac fry and early swim up stages.

Higher test temperatures increased the toxicity of Roundup to fish, as did higher pH (up to pH 7.5). Above pH 7.5, no change in toxicity is observed.

Glyphosate alone is considered to be only slightly acutely toxic to fish species (LC50s greater than 10 mg/L), whereas Roundup is considered to be toxic to some species of fish, having LC50s generally lower than 10 mg/L (15,118).

SUMMARY

Glyphosate when used as recommended by the manufacturer, is unlikely to enter watercourses through run-off or leaching following terrestrial application (117). Toxic levels are therefore unlikely to occur in water bodies with normal application rates and practices (118).

Glyphosate has oral LD50s of 4,320 and 5,600 in male and female rats respectively. The elimination is rapid and very little of it is metabolized. The NOAEL in rats was 20,000 ppm and 500 mg/kg/d in dogs. No teratogenic effect was observed at doses up to 3,500 mg/kg/d and the fetotoxicity NOELs were 1,000 mg/kg/d in the rat and 175 mg/kg/d in the rabbit.

The evidence of oncogenicity in animals is judged as insufficient at this time to permit classification of the carcinogenic potential of glyphosate. The compound is not mutagenic.

REFERENCES

1. The Agrochemicals Handbook: 1983 Reference manual to chemical pesticides, Pub. by the Royal Society of Chemistry. The University, Nottingham NG7 2RD, England
4. RTECS Registry of Toxic Effects of Chemical Substances: 1982 NIOSH, US Dept. of Health and Human Services Ref QV 605 T755 Vol. 1, 2,&3 1981-1982

6. The FDA Surveillance Index and Memorandum: Aug. 1981 and up Review and recommendations of the US Food & Drug Admin. Pub. by NTIS, US Dept. of Commerce
7. NTP Technical Report Series U.S. Dept. of Health and Human Services Pub. by The National Institute of Health
8. BNA Chemical Regulation Reporter: starts 1977 A weekly view of activity affecting chemical users and manufacturers. Pub. by The Bureau of National Affairs, Inc. 0148-7973
9. Dept. of Justice - Drug Enforcement Administration Memo dated September 26, 1985
10. The Herbicide Handbook: 1983 Fifth Ed. Handbook of the Weed Science Society of America. Pub. by the Weed Science Society of America, Champaign, Ill.
14. GEIR Generic Environmental Impact Report: 1985 Control of Vegetation of Utilities & railroad Rights of Way. Pub. by Harrison Biotec, Cambridge, MA
15. Pesticide Background Statements: Aug. 1984 USDA Forest Service Agriculture Handbook #633 Vol. 1
51. Office of Drinking Water Health Advisories, USEPA
101. IUPAC Advances In Pesticide Science (1978) V—2 p. 139.
106. Hietanen, E., Linnainmaa, K. and Vainio, H. (1983) Effects of Phenoxyherbicides and Glyphosate on the Hepatic and Intestinal Biotransformation Activities in the Rat *Acta Pharmacol et Tox* 53 p. 103—112.
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112. Guidance for the Re-registration of Pesticide Products Containing Glyphosate, June 1986
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116. Monsanto-Memo-RE: Day 1 year oral
117. The Herbicide Glyphosate Grossbard E. and Atkinson, D. (19)
118. Non-Target Impacts of the Herbicide Glyphosate Mammal Pest Management, LTD.
120. Maibach, H.I. (1986) Irritation, Sensitization, Photo Irritation and Photosensitizing assays with Glyphosate Herbicide. *Contact Dermatitis* 15 152—156.
122. Pesticide Residues in Food - 1986 FAQ Plant Production and Protection Paper 77.
123. Personal communication with Bill Heydens of Monsanto 2/16/89



2008 Rights-of-Way Sensitive Area Materials List

Contact: Hotze Wijnja (Sensitive Area Materials List) at hotze.wijnja@state.ma.us - 617.626.1771

[Back to Rights of Way Home](#)

Active Ingredient <i>Use Restrictions</i>	Product Names (EPA #) <i>Registrant</i>	
<p style="text-align: center;">Glyphosate Lowest Labeled Rate for all Glyphosate products</p>	<p style="text-align: center;">Round Up Pro (524-475) Monsanto</p>	<p style="text-align: center;">Accord SP (62719-322) Glypro-Plus (62719-322) Accord Concentrate (62719-324) Dow AgroSciences</p>
	<p style="text-align: center;">Razor (228-366) Razor-Pro (228-366) Riverdale AquaNeat Aquatic Herbicide (228-365) Nu Farm Americas</p>	
<p>While Accord Concentrate, Rodeo, Glyphosate VMF and Aquaneat all have aquatic uses, approval for their use as sensitive materials does NOT mean that they can be used for aquatic weed control, or directly applied to water, as part of a rights of way management program. Products are subject to the no-spray and limited spray provisions of 333 CMR 11.04.</p>		
<p style="text-align: center;">Metsulfuron Methyl Lowest Labeled Rate for all Metsulfuron Methyl Products*</p>	<p style="text-align: center;">Escort (352-439) Escort XP (352-439) Ei Dupont</p>	<p style="text-align: center;">Riverdale Patriot Herbicide, (228-391) Nu Farm Americas</p>
<p style="text-align: center;">Sulfometuron Methyl Lowest Labeled Rate for all Sulfometuron-Methyl Products*</p>	<p style="text-align: center;">Oust XP (352-601) Ei Dupont</p>	<p style="text-align: center;">Riverdale Spyder Herbicide, (228-408) Nu Farm Americas</p>
<p style="text-align: center;">Metsulfuron Methyl Sulfometuron Methyl Lowest Labeled Rate*</p>	<p style="text-align: center;">Oust Extra (352-622) Ei Dupont</p>	
<p style="text-align: center;">Ammonium Salt of Fosamine Lowest Labeled Rate*</p>	<p style="text-align: center;">Krenite S (352-395) Ei Dupont</p>	
<p style="text-align: center;">Imazapyr 3 pints/acre every 3rd year OR 2 pints/acre every other year for all Imazapyr Products</p>	<p style="text-align: center;">Arsenal (241-346) Arsenal Railroad Herbicide (241-273) BASF</p>	<p style="text-align: center;">POLARIS HERBICIDE (241-346-228) POLARIS RR HERBICIDE (241-273-228) NU FARM AMERICAS</p>
<p style="text-align: center;">Triclopyr, Butoxy Ethyl Ester The lowest of the following rates: 1. Between 10 feet and 50 feet of the resource: Lowest labeled rate* or</p>	<p style="text-align: center;">Garlon 4 (62719-40) Dow AgroSciences</p>	<p style="text-align: center;">Riverdale Tahoe 4E Herbicide, (228-385) Nu Farm Americas</p>

<p><i>0.5 pints per acre</i></p> <p><i>2. Between 50 feet and the boundary of the limited spray zone: Lowest labeled rate* or 3 pints per acre</i></p>	
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* **Lowest labelled rate:** the minimum labelled rate of the pesticide product for the appropriate site, pest and application method

Disclaimer: The Massachusetts Department of Agricultural Resources (MDAR) makes no endorsement of any companies, organizations, persons, products, trade or brand names referenced in this Rights of Way Sensitive Area Materials List ("the list"). Active Ingredients on the list are reviewed pursuant to a Cooperative Agreement between MDAR and the Massachusetts Department of Environmental Protection. Only environmental fate and toxicological data, including eco-toxicological data, are reviewed when evaluating an active ingredients suitability for inclusion on the list. Inclusion on the list does not represent any endorsement by MDAR as to the efficacy of the active ingredient for rights-of-way vegetation management.

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