Data represents Midwest Invasive Plant Network best practices for MN Dept of Agriculture 2019 Noxious Weed List			
Spreadsheet is filtered to the plants identified by Marcia Holmberg - Mpls Parks Natural Areas Management (highlighted in yellow)			
Methods that involve glyphosate - highlighted in green			
"Method Notes" in column L summarizes glyphosate efficacy and most highly rated non-chemical method			
Method effectiveness is denoted by number of stars for efficacy IN SEASON and ONE YEAR AFTER treatment e.g. 4:4 means best efficacy in short term and best efficacy a year after treatment			
Methods are ranked first, second, or third depending on number of stars			
Vegetation type based on Simba Blood's categories			
https://mipncontroldatabase.wisc.edu/Default.aspx			
https://www.mda.state.mn.us/sites/default/files/2019-01/2019%20MN%20Noxious%20Weed%20List%20Fact%20SheetADAV2.pdf			
Status Legend			
Eradicate List –must be eradicated by killing the above and below ground parts of the plant.			
Control List –must be controlled preventing the maturation and spread of propagating parts.			
Restricted Noxious Weeds - may not be sold, transported illegally, or intentionally planted in Minnesota.			
Specially Regulated Plants –shall be handled, controlled or eradicated according to specified regulations.			
Townships: Townships can also use their local ordinance process to regulate plant species that are not listed by the county or state. Enforcement of species listed via a municipal ordinance is the responsibility of municipal authorities and cannot be regulated under or associated with the Minnesota Noxious Weed			
Counties: County Noxious Weeds are plants that are designated by individual county boards to be enforced as prohibited noxious weeds within the county's			
Additional resources for regulated noxious weeds and non-regulated invasive plants in Minnesota			
MDA Website - www.mda.state.mn.us/plants-insects/noxious-and-invasive-weed-program			
MN DOT Website - www.dot.state.mn.us/roadsides/vegetation/pdf/noxiousweeds.pdf			
MN DNR Website - www.dnr.state.mn.us/invasives/terrestrialplants/index.html			
MN BWSR Cooperative Weed Management Areas - http://www.bwsr.state.mn.us/grants/cwma/CWMA.html			
Note:			
This survey was done on the MIPN database as of 3/15/19, the database is expected to change over time			
There are multiple attributes with potential to impact method choice- plant pathology and growth habits, presence or absence of water bodies, weather (sunshine, wind, rain), time of year, extent of soil disruption, location of plant communities that need to be protected, presence of animals or humans, etc. Budget and labor were not considered, only efficacy on targeted species.			

MN DEPT OF AGRICULTURE - 2019 NOXIOUS WEEDS LIST					Effective methods: Methods that are most effective IN SEASON and A YEAR A	
	Mpls Parks natural areas - targeted plants in yellow				Glyphosate methods - hilited in green	
List	Species Common Name	Species	Status	Vegetation Type	**FIRST LEVEL**	Method dependancies
2	Oriental Bittersweet - 2010	*Celastrus orbiculatus* Thunb.	Prohibited - Eradicate	Woody perennials	CHEMICAL - imazapyr - foliar or cut stump (4:3)	Timing for foliar application, chemical handling and application rules
9	Grecian Foxglove - 2010	*Digitalis lanata* Ehrh.	Prohibited - Eradicate	Herbaceous biennials	no MIPN entry found	
11	Cutleaf Teasel - 2011	*Dipsacus laciniatus* L.	Prohibited - Eradicate	Herbaceous biennials	CHEMICAL -aminocyclopyrachlor + metsulfuron - foliar (4:4)	Timing for foliar application, chemical handling and application rules
1	Common Barberry - 2016	*Berberis vulgaris* L.	Prohibited - Control	Woody perennials	no MIPN entry found - see Japanese Barberry	
2	Narrowleaf Bittercress - 2011	*Cardamine impatiens* L.	Prohibited - Control	Herbaceous biennials	no MIPN entry found	
4	Spotted Knapweed - 2001	*Centaurea stoebe* L. ssp. *micranthos* (Gugler) H	Prohibited - Control	Herbaceous biennials	CHEMICAL - aminocyclopyrachlor + metsulfuron, aminopyralid, aminocyclopyrachlor + chlorsulfuron - foliar (4:4)	Timing for foliar application, chemical handling and application rules
5	Canada Thistle - 1872	*Cirsium arvense* (L.) Scop.	Prohibited - Control	Herbaceous perennials	CHEMICAL - aminocyclopyrachlor + metsulfuron, aminopyralid - foliar (4:4)	Timing for foliar application, chemical handling and application rules
6	Leafy Spurge - 1992	*Euphorbia esula* L.	Prohibited - Control	Herbaceous perennials	CHEMICAL - picloram + 2,4-D, aminocyclopyrachlor + chlorsulfuron- foliar (4:3)	Timing for foliar application, chemical handling and application rules
7	Purple Loosestrife - 1992	*Lythrum salicaria* L., L. *virgatum* L.	Prohibited - Control	Herbaceous perennials	CULTURAL - Cultivation three times a season with care not to spread root fragments (4:3) CHEMICAL - imazapyr - foliar (4:3)	CULTURAL: Timing for cultivation CHEMICAL: Timing, chemical handling and application rules
8	Wild Parsnip - 2010	*Pastinaca sativa* L. (Except for non-wild cultivat	Prohibited - Control	Herbaceous biennials	CHEMICAL - aminocyclopyrachlor + chlorsulfuron, metsulfuron, dicamba + 2,4-D - foliar (4:4)	Timing for foliar application, chemical handling and application rules
9	Common Tansy - 2010	*Tanacetum vulgare* L	Prohibited - Control	Herbaceous perennials	CHEMICAL - imazapyr, metsulfuron - foliar (4:3)	Timing for foliar application, chemical handling and application rules
2	Garlic Mustard - 2013	Alliaria petiolata (M. Bieb) Cavara & Grande	Prohibited - Noxious Weeds	Herbaceous biennials	CHEMICAL - imazapyr, imazapic + glyphosate, aminocyclopyrachlor + metsulfuron, sulfosulfuron, metsulfuron, imazapic, sulfometuron- foliar (4:2)	Timing for foliar application, chemical handling and application rules
4	Crown Vetch - 2016	Securigera varia (L.) – Formerly known as Coror	Prohibited - Noxious Weeds	Herbaceous perennials	CHEMICAL -aminopyralid, picloram- foliar (4:3)	Timing for foliar application, chemical handling and application rules
5	Wild Carrot/Queen Anne's Lace - 2016	Daucus carota L.	Prohibited - Noxious Weeds	Herbaceous biennials	no MIPN entry found	

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	Mpls Parks natural areas - targeted plants in yellow				Glyphosate methods - hilited in green	
List	Species Common Name	Species	Status	Vegetation Type	**FIRST LEVEL**	Method dependancies
6	Glossy Buckthorn (and all cultivars) - 1999	Frangula alnus Mill.	Prohibited - Noxious Weeds	Woody perennials	CHEMICAL -triclopyr- foliar or cut stump (4:4)	Timing for foliar application, chemical handling and application rules
7	Amur Honeysuckle – 2016	Lonicera maackii (Rupr.) Herder	Prohibited - Noxious Weeds	Woody perennials	CHEMICAL - glyphosate - foliar; imazapyr, triclopyr, picloram - cut stump; triclopyr - basal bark (4:4)	Timing for foliar application, chemical handling and application rules
8	Morrow's Honeysuckle - 2016	Lonicera morrowii A. Gray	Prohibited - Noxious Weeds	Woody perennials	CHEMICAL - glyphosate - foliar; imazapyr, triclopyr, picloram - cut stump (4:4)	Timing for foliar application, chemical handling and application rules
9	Bell's Honeysuckle - 2016	Lonicera x bella Zabel	Prohibited - Noxious Weeds	Woody perennials	CHEMICAL - glyphosate - foliar; imazapyr, triclopyr, picloram - cut stump; triclopyr - basal bark (4:4)	Timing for foliar application, chemical handling and application rules
10	Common Reed (non-native) - 2013	Phragmites australis (Cav.) Trin. ex Steud. ssp. a	Prohibited - Noxious Weeds	Herbaceous perennials	no MIPN entry found	
11	Common or European Buckthorn - 1999	Rhamnus cathartica L	Prohibited - Noxious Weeds	Woody perennials	CHEMICAL -triclopyr- foliar or cut stump (4:4)	Timing for foliar application, chemical handling and application rules
14	Tatarian Honeysuckle - 2016	Lonicera tatarica L.	Prohibited - Noxious Weeds	Woody perennials	CHEMICAL - glyphosate - foliar; imazapyr, triclopyr, picloram - cut stump; triclopyr - basal bark (4:4)	Timing for foliar application, chemical handling and application rules
15	Japanese Barberry Cultivars** - 2017	Berberis thunbergii DC.	Prohibited - Noxious Weeds	Woody perennials	MECHANICAL - Pulling or digging up small to medium sized barberry any time of the year (4:3) CHEMICAL - triclopyr, glyphosate - cut stump (4:3)	MECHANICAL: Soil conditions CHEMICAL: chemical handling and application rules
1	Poison Ivy - 2010	*Toxicodendron radicans* L. Kuntzeand *T.rydberg*	Specially Regulated Plants	Woody perennials	no MIPN entry found	
2	Japanese Knotweed - 2013	*Polygonum cuspidatum* Seib. & Zucc.	Specially Regulated Plants	Herbaceous perennials	CULTURAL- Mulching or Tarping, watch for new sprouts beyond the edge of the mulch or tarp as knotweed sprouts readily from the rhizome (4:3) CHEMICAL - aminopyralid - foliar (4:3)	CHEMICAL: Timing for foliar application, chemical handling and application rules
4	Amur Maple - 2016	*Acer ginnala* Maxim.	Specially Regulated Plants	Woody perennials	no MIPN entry found	

MN DEPT OF AGRICULTURE - 2019 NOXIOUS WEEDS LIST	AFTER TREATMENT - denoted by number of stars e.g. 4:4 means 4 stars in short term and 4 stars a year after treatment					
	Mpls Parks natural areas - targeted plants in yello					
List	Species Common Name	**SECOND LEVEL**	Method dependancies	**THIRD LEVEL**	Method dependancies	**METHOD NOTES**
2	Oriental Bittersweet - 2010	MECHANICAL - pulling or digging to remove roots (4:2) CHEMICAL - glyphosate or triclopyr - cut stump (4:2)	MECHANICAL - Soil conditions CHEMICAL - chemical handling and application rules	MECHANICAL - mow beginning in spring and continue every two weeks (3:2) CHEMICAL - glyphosate or triclopyr - foliar (3:2)	MECHANICAL - Timing CHEMICAL - Timing for foliar application, chemical handling and application rules	Glyphosate not most effective (3:2 foliar, 4:2 cut stump) Most effective non-chemical methods: pulling (4:2)
9	Grecian Foxglove - 2010					
11	Cutleaf Teasel - 2011	CHEMICAL - sulfometuron, imazapyr, dicamba + 2,4-D, picloram, triclopyr, metsulfuron, aminopyralid - foliar (4:3)	Timing for foliar application, chemical handling and application rules	MECHANICAL - Pulling and cutting the root from the stem or cutting tap root (4:2)	Soil conditions	Glyphosate not most effective (4:1) Most effective non-chemical methods: pulling (4:2)
1	Common Barberry - 2016					
2	Narrowleaf Bittercress - 2011					
4	Spotted Knapweed - 2001	CHEMICAL - picloram, clopyralid - foliar (4:3)	Timing for foliar application, chemical handling and application rules	MECHANICAL - removal of the top 3" of the taproot (4:2) CHEMICAL - dicamba + 2,4-D, glyphosate, dicamba + diflufenzopyr - foliar (4:2)	MECHANICAL - Soil conditions; CHEMICAL - Timing for foliar application, chemical handling and application rules	Glyphosate not most effective (4:2) Most effective non-chemical methods: pulling (4:2)
5	Canada Thistle - 1872	CHEMICAL - clopyralid, picloram + 2,4-D - foliar (4:3)	Timing for foliar application, chemical handling and application rules	CHEMICAL - glyphosate, picloram - foliar (3:3)	Timing for foliar application, chemical handling and application rules	Glyphosate not most effective (3:3) Most effective non-chemical methods: pulling, grazing (3:1)
6	Leafy Spurge - 1992	CHEMICAL - imazapic- foliar (4:2)	Timing for foliar application, chemical handling and application rules	CHEMICAL - quinclorac, picloram - foliar (3:2)	Timing for foliar application, chemical handling and application rules	Glyphosate not most effective (2:2) Most effective non-chemical methods: mowing, prescribed burning, pulling, intensive cultivation (2:1)
7	Purple Loosestrife - 1992	CHEMICAL - metsulfuron, aminopyralid - foliar (3:3)	Timing for foliar application, chemical handling and application rules	CHEMICAL - glyphosate - foliar (3:2)	Timing for foliar application, chemical handling and application rules	Glyphosate not most effective (3:2) Most effective non-chemical methods: cultivation (4:3) (Note that biocontrol method = 1:1))
8	Wild Parsnip - 2010	MECHANICAL - mowing, pulling or cutting roots (4:3) CHEMICAL - chlorsulfuron, 2,4-D, glyphosate - foliar (4:3)	MECHANICAL - Timing, Soil conditions CHEMICAL - Timing for foliar application, chemical handling and application rules	MECHANICAL - grazing (2:1) CULTURAL - prescribed burns or torching (2:1)	MECHANICAL -foraging mix (toxicity) for grazing CULTURAL -Timing and weather for fire	Glyphosate not most effective (4:3) Most effective non-chemical methods: mowing or pulling (4:3)
9	Common Tansy - 2010	MECHANICAL - Pulling or digging when soil conditions allow for the removal of rhizomes (4:2)	MECHANICAL - Soil conditions	CHEMICAL - chlorsulfuron, picloram - foliar (3:3)	Timing for foliar application, chemical handling and application rules	Glyphosate not most effective (2:1) Most effective non-chemical methods: pulling (4:2)
2	Garlic Mustard - 2013	MECHANICAL - Pulling or cutting the root from the stem before flowering (4:1) CHEMICAL - glyphosate - foliar (4:1)	MECHANICAL - Soil conditions CHEMICAL - Timing for foliar application, chemical handling and application rules	CULTURAL - If the canopy of a forest becomes disturbed, plant or manage species present to increase light interception and restore the canopy as quickly as possible (3:3)	Timing of disturbance	Glyphosate not most effective (4:1) Most effective non-chemical methods: pulling (4:1)
4	Crown Vetch - 2016	CHEMICAL -sulfometuron, clopyralid- foliar (3:3)	Timing for foliar application, chemical handling and application rules	CHEMICAL - metsulfuron, fluroxypyr, dicamba, triclopyr - foliar (3:2)	Timing for foliar application, chemical handling and application rules	Glyphosate not most effective (2:1) Most effective non-chemical methods: removal of plant and rhizomes (3:1)
5	Wild Carrot/Queen Anne's Lace - 2016					

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	Mpls Parks natural areas - targeted plants in yello					
List	Species Common Name	**SECOND LEVEL**	Method dependancies	**THIRD LEVEL**	Method dependancies	**METHOD NOTES**
6	Glossy Buckthorn (and all cultivars) - 1999	MECHANICAL - Pull, to prevent resprouting remove above-ground growth and root crown (4:3) CHEMICAL - imazapyr - cut stump (4:3)	MECHANICAL - Soil conditions CHEMICAL - chemical handling and application rules	CHEMICAL -picloram, glyphosate - cut stump (4:2); triclopyr, imazapyr - basal bark (2:4)	CHEMICAL - chemical handling and application rules	Glyphosate not most effective (2:1 foliar, 4:2 cut stump) Most effective non-chemical methods: pulling (4:3) (Note basal bark chemical treatment has good long term efficacy (2:4))
7	Amur Honeysuckle – 2016	CHEMICAL - glyphosate - cut stump (4:3)	Chemical handling and application rules	MECHANICAL - Can be controlled by pulling or digging plants as long as the root crown is removed (4:2)	Soil conditions	Glyphosate foliar treatment effective (4:4) Most effective non-chemical methods: pulling (4:2)
8	Morrow's Honeysuckle - 2016	CHEMICAL - glyphosate - cut stump (4:3)	Chemical handling and application rules	MECHANICAL - Can be controlled by pulling or digging plants as long as the root crown is removed (4:2)	Soil conditions	Glyphosate foliar treatment effective (4:4) Most effective non-chemical methods: pulling (4:2)
9	Bell's Honeysuckle - 2016	CHEMICAL - glyphosate - cut stump (4:3)	Chemical handling and application rules	MECHANICAL - Can be controlled by pulling or digging plants as long as the root crown is removed (4:2)	Soil conditions	Glyphosate foliar treatment effective (4:4) Most effective non-chemical methods: pulling (4:2)
10	Common Reed (non-native) - 2013					
11	Common or European Buckthorn - 1999	MECHANICAL - Pull, to prevent resprouting remove above-ground growth and root crown (4:3) CHEMICAL - imazapyr - cut stump (4:3)	MECHANICAL - Soil conditions CHEMICAL - chemical handling and application rules	CHEMICAL -picloram, glyphosate - cut stump (4:2); triclopyr, imazapyr - basal bark (2:4)	CHEMICAL - chemical handling and application rules	Glyphosate not most effective (2:1 foliar, 4:2 cut stump) Most effective non-chemical methods: pulling (4:3) (Note basal bark chemical treatment has good long term efficacy (2:4))
14	Tatarian Honeysuckle - 2016	CHEMICAL - glyphosate - cut stump (4:3)	Chemical handling and application rules	MECHANICAL - Can be controlled by pulling or digging plants as long as the root crown is removed (4:2)	Soil conditions	Glyphosate foliar treatment effective (4:4) Most effective non-chemical methods: pulling (4:2)
15	Japanese Barberry Cultivars** - 2017	CHEMICAL - metsulfuron, dicamba + 2,4-D, triclopyr - foliar (3:3)	Timing for foliar application, chemical handling and application rules	CHEMICAL - glyphosate - foliar (3:2); triclopyr, imazapyr - basal bark (2:3)	Timing for foliar application, chemical handling and application rules	Glyphosate cut stump method effective (4:3) Most effective non-chemical methods: pulling (4:3)
1	Poison Ivy - 2010					
2	Japanese Knotweed - 2013	CHEMICAL - triclopyr, triclopyr + 2,4-D, glyphosate - cut stump (4:2)	Timing for cut stump treatment, chemical handling and application rules	CHEMICAL -tebuthiuron - pre emergent; imazapyr - foliar (3:3)	Timing of pre-emergent and foliar application, chemical handling and application rules	Glyphosate not most effective (3:2 foliar, 4:2 cut stump) Most effective non-chemical methods: mulching or tarping (4:3)
4	Amur Maple - 2016					

Prescribed Fire
Flame weeding or torching
Plantings
Soil Health (preventing compaction, nutrient pollution, turbation, etc)
Fertility
Competition
Cover Crops
Cultivation
Solarization/Smothering - black plastic
Smothering - cardboard or mulch
Smothering - tarp
Prevention of seed bank
Prevention of spread via early detection and intervention
Herbicide - foliar
Herbicide - cut surface
Herbicide - Basal Bark
Herbicide - Injection/Hpyo-Hatchet
BioControls
Dredging
Drowning
Scraping
Salinization
Forestry Mowing
Brush Saws
Weed Wrenching
Hand Pulling
Mowing
Grazing (sheep, goats, etc)
Repeated cutting
Organic herbicides (acid, oils, etc)
Corn gluten (preemergent herbicide)
FeHEDTA (iron based herbicide)
Hot water, steam