



Tree/Shrub Establishment (Acre) 612

DEFINITION

Establishing woody plants by planting seedlings, container/potted stock, cuttings, direct seeding or natural regeneration.

PURPOSES

To establish woody plants for one or more of the following:

- Forest products
- Wildlife food and habitat
- Water quality improvement
- Erosion control
- Air pollution reduction
- Waste treatment
- Carbon sequestration
- Energy conservation
- To beautify an area.

CONDITIONS WHERE PRACTICE APPLIES

On any areas where woody plants are suited.

GENERAL CRITERIA APPLICABLE TO ALL PURPOSES

- Planting plans will be developed for one or more species adapted to soil/site conditions using information in published Soil Surveys-Species to Plant, Michigan State University Extension Bulletin E-771, Tree Planting in Michigan Table 1. or other MSU-E, MDNR, or NRCS publication.
- Species will be suitable for the planned purpose.
- Known invasive species shall not be used.
- Planting or seeding rates will be adequate to accomplish the planned purpose.
- Plans and application of tree/shrub establishment will comply with all applicable federal, state, and local laws and regulations.
- The planting design shall consider the cultural and management practices likely to occur in the future e.g. harvesting equipment, thinnings, etc.
- Planting dates, and care in handling and planting of the seed or seedlings will ensure that planted materials have an acceptable rate of survival.
- Only viable, high quality and adapted planting stock or seed will be used.
- Site preparation shall be sufficient for establishment and growth of selected species.

- Adequate seed or advanced reproduction needs to be present or provided for when using natural regeneration to establish a stand.
- Timing and use of equipment will be appropriate for the site and soil conditions.
- The acceptability and timing of coppice regeneration shall be based on species, age, and diameter.
- All Tree/Shrub plantings will be protected from pests, livestock, and wildfire. **Refer to Michigan NRCS Standard #394 - Firebreak**
- Woody plants shall be established without compromising the integrity of:
 1. Property Lines
 2. Fences
 3. Utilities
 4. Roads
 5. Legal Drains
 6. Other Easement Areas or Right of Ways
- Supplemental planting is done to improve the stocking and composition of an existing stand.
- The existing stand is managed for the protection and early development of planted trees.
- Use a spacing of no less than 544 trees/acre (8' x 10') for supplemental plantings.
- Trees shall not be planted in locations where they will be overtopped by other trees left in the stand. Competing overstory trees shall be killed or removed 2-5 years after plantings have become established.
- The following table provides a list of some species suitable for supplemental planting.

Species Suitable for Supplemental Planting

Scientific Name	Common Name
<i>Prunus serotina</i>	Black Cherry
<i>Juglans nigra</i>	Black Walnut
<i>Fraxinus pennsylvanica</i>	Green Ash
<i>Quercus alba</i>	White Oak
<i>Quercus rubra</i>	Red Oak
<i>Pinus strobus</i>	White Pine
<i>Fraxinus americana</i>	White Ash
<i>Picea glauca</i>	White Spruce
<i>Tsuga canadensis</i>	Eastern Hemlock
<i>Acer saccharum</i>	Sugar Maple
<i>Liriodendron tulipifera</i>	Yellow Poplar

- Where subsurface drains (tile lines) cross through a tree/shrub planting, and where these drains will remain functional, sealed conduit shall be installed through the planting and extend a minimum of 100 feet from rows of large spreading trees and 75 feet from small to medium sized trees and shrubs. Conifers (with the exception of northern white cedar) normally do not interfere with subsurface drains but invading tree species can interfere.

Additional Criteria for Establishment of Trees for Forest Products

Christmas trees

- Use a 6' spacing in the rows and a row width to accommodate maintenance equipment. Allow for adequate service roads in the plantation. **Refer to: North Central Regional Extension Publication No. 479 – Recommended Species for Christmas Tree Plantings and Michigan State University Bulletin E-1172, Growing Christmas Trees In Michigan for further guidelines.**

Supplemental Plantings (Underplanting, species enrichment, or planting additional trees in an area that is already stocked with trees)

Fine Hardwoods- These hardwood tree species are suitable for furniture, veneer products, moldings, etc. See the following table listing some fine hardwood species native to Michigan.

Fine Hardwood Species

Scientific Name	Common Name
<i>Prunus serotina</i>	Black Cherry
<i>Juglans nigra</i>	Black Walnut
<i>Quercus alba.</i>	White Oak
<i>Quercus rubras</i>	Red Oak
<i>Betula allegheniensis</i>	Yellow Birch
<i>Liriodendron tulipifera</i>	Yellow Poplar
<i>Fraxinus americana</i>	White Ash
<i>Acer saccharum</i>	Sugar Maple

- Plant hardwoods at a rate of 300-900 trees per acre. Trainer trees that encourage straight

boles e.g. White Pine, Hybrid Aspen, Yellow Poplar, White Ash, may be added to the planting in every other row so that they will be harvested when the stand receives its first thinning. (*Refer to: Michigan NRCS Standard #666 – Forest Stand Improvement for hardwood thinning guidelines.*)

Conifer Species- The following species of conifers may be planted to produce lumber, veneer or pulp crops:

Conifer Species

Scientific Name	Common Name
<i>Abies balsamea</i>	Balsam Fir
<i>Pinus resinosa</i>	Red Pine
<i>Pinus strobus</i>	Eastern White Pine
<i>Pinus banksiana</i>	Jack Pine
<i>Picea glauca</i>	White Spruce
<i>Larix laricina</i>	Eastern Larch
<i>Thuja occidentalis</i>	Northern White Cedar
<i>Picea abies</i>	Norway Spruce
<i>Tsuga canadensis</i>	Eastern Hemlock

- Plant conifers at a rate of 600–1000 trees per acre for timber production.

Additional Criteria for Establishing Woody Plantings for Erosion Control

- Plant at a rate of 1000-1200 trees per acre.
- If revegetating sandblow areas, protect conifer seedlings from mechanical damage caused by blowing sand by planting within brush cuttings placed there for protection of seedlings. Trees may also be planted within a cover of dune grass. *Refer to Michigan NRCS Standard #342-Critical Area Planting for further guidelines.*
- Equipment and planting will be done on the contour or across the slope.
- Temporary or permanent cover crops (non-competitive) of oats or native grasses may be needed when planting windbreaks or reforesting open areas subject to wind or water areas. Care must be taken to control competition within a 3'x3' area of the tree/shrub zone.

- On streambanks, select shrubs/tree seedlings or cuttings that may not be favored by beaver. Examples: pines, ashes, elderberry, and hemlock.

Additional Criteria to Establish Wildlife Habitat

- Use several native species and plant at rate that best meets wildlife needs. *Refer to Michigan NRCS Standards: #422-Hedgerow Planting and #645-Upland Wildlife Habitat Management and Michigan NRCS Conservation Sheet #612a – Tree/Shrub Establishment for Reforestation, Windbreaks and Wildlife and MDNR/MSU Publication: Managing for Michigan’s Wildlife-A Landowner’s Guide for additional species and information. See Table 1 – Some Native Tree/Shrub Species that Provide Wildlife Food/Habitat*

Additional Criteria for Water Quality and Waste Treatment

- Select species that have rapid growth characteristics and extensive root systems.
- Use species that produce wood/fiber in short rotations to obtain maximum biomass removal.
- Plant flood-resistant species when establishing riparian forest buffers. *Refer to Michigan NRCS Standard #391-Riparian Forest Buffer for criteria.*

Additional Criteria for Carbon Sequestration

- Plant species at optimum rates that have rapid growth.
- When using trees/shrubs for greenhouse gas reductions, prediction of carbon sequestration rates shall be made using current, approved carbon sequestration modeling technology.

CONSIDERATIONS

- It is extremely important to consider the landowner's objectives for tree/shrub establishment so that the planned objective for the planting is achievable. Sites that are frequently flooded or ponded for long or very long duration may be difficult and unpractical for tree/shrub establishment. In such cases, consider using natural regeneration to establish trees or allow the site to revegetate to herbaceous and/or woody shrub cover.
- Consider planting 2-3 rows of conifers along all open deciduous plantation edges to serve as woodland borders and wind barriers. Place periodic rows of conifers within large plantings of hardwoods to increase species diversity and improve wildlife habitat.
- Consider planting woody vegetation 8 feet or more from property lines, fences, utility lines, and roads. An exception would be where adjoining landowners agree to establish plants on property lines.
- Consider using a support stake when planting containerized trees and balled and burlapped stock.
- When underplanting, trees should be planted sufficiently in advance of overstory removal to ensure full establishment.
- Prescribed burning may be required for natural regeneration of serotinous cone species and for site preparation for other species. *See Michigan NRCS Standard #338- Prescribed Burning.*
- All planting stock and seed should ideally be purchased from nurseries that are known to be using locally adapted seed, seedlings or cuttings. Priority should be given to native plant materials that have been selected and tested in tree improvement programs. Plans for landscape and beautification plantings should consider foliage color, color and season of flowering, and mature plant height.
- Where multiple species are available to accomplish the establishment objective, consideration should be given to selecting those native species which best meet wildlife needs.

- Tree arrangement and spacing should allow for access depending on purpose. (*See Michigan NRCS Standards for: Access Road (560), Recreation Trail and Walkway (568), and Firebreak (394)*)
- Residual chemical carryover from adjacent farming operations should be considered prior to planting woody stock.
- Consider species being planted for possible attack by disease or insects: (Beech Bark Disease, Emerald Ash Borer, etc.)

General Specifications Applicable to All Purposes

Site Preparation/Weed Control for Establishment

- Provide a minimum of 9 square feet weed-free zone around all woody plantings. Eliminate all competing vegetation in all seedbed areas to be direct seeded prior to planting. *Refer to NRCS Michigan Conservation Practice Standard #490-Forest Site Preparation and Michigan Conservation Design Sheet #612- Weed Control for Tree/Shrub Establishment.*
- If fabric weed barriers are used, the following shall apply:
 - 1) Barrier must be a minimum of 9 sq.ft. / plant.
 - 2) Barrier must be permeable to water and be guaranteed by manufacturer to last a minimum of 3 years when exposed to sunlight.
 - 3) Barrier shall be capable of inhibiting all underlying plant growth.
 - 4) Barrier must be pinned and otherwise installed according to manufacturer's specifications.
- If tillage is used for weed control, care must be taken not to damage plant stems. Keep tillage depths shallow to avoid root damage.
- Mowing or cutting of weeds or grass is not an acceptable means of weed control around woody plantings.

Planting Dates

- Bare-rooted stock shall be planted during the dormant season in the spring after the ground thaws until June 1 as soil moisture and local weather conditions permit. Fall planting may be done after October 1 until the ground freezes when soil moisture is adequate. Fall planting of bare-rooted stock will not be done on soils subject to frost-heave action (clays, clay loam, silty clay loams, silts, silt loams, and loams).
- Balled and burlapped or container-grown stock shall be planted October 1 to June 1 as local soil moisture and weather conditions permit.
- Direct seeding shall be completed from October 1 through April 30 as local soil moisture and weather conditions permit. Spring seeding of some heavy-seeded species may reduce rodent and insect damage. Fall seeding may eliminate the need for seed stratification and seed storage but may increase loss to rodents and other pests.

Minimum Planting Stock Size

- Bare-rooted seedling and plug stock:*

Conifers:

Tree Height	Caliper ¹	Minimum Root Length
9"	1/8"	8"
12"	3/16"	10"
15"	3/16"	10"

Hardwoods:

Tree Height	Caliper ¹	Minimum Root Length
8"	3/16"	8"
10"	1/4"	10"
12"	1/4"	10"

*Plug and seedling stock of smaller size may be substituted to meet special planting conditions. Plug stock may not perform better on droughty sites than 9" bare-rooted seedlings.

- **Balled and Burlapped Stock**

Conifers:

Tree Height	Minimum Diameter Ball
18-24"	10"
2-3'	12"

3-5'	14"
5-6'	20"

Hardwoods:

Tree Height	Minimum Diameter Ball	Caliper ¹
5-6'	12"	1/2"
6-8'	14"	3/4"
8-10'	16"	1"

- **Containerized stock (all species)**

Container Size	Tree Height	Caliper ¹
1 gallon	2 – 4'	3/8 – 5/8"
3 gallon	2 – 6'	3/8 – 5/8"

¹ Caliper (diameter at ground level) shall be measured at the root collar.

- **Cuttings (Hybrid Aspen, Willow, Cottonwood)** – Minimum 10" in length with 3/8" caliper.

Storage, Care and Handling of Woody Planting Stock

- Planting stock will be protected from desiccation during temporary storage and handling prior to and during planting. Stock will be kept in a cool environment out of direct sunlight and wind. *Refer to Michigan NRCS Conservation Sheet #612A- Tree/Shrub Planting for: Reforestation, Windbreaks and Wildlife and MSU Bulletin E-771 Tree Planting in Michigan for additional guidelines on handling and storage of planting stock.*
- If planting of bare-rooted seedling stock is delayed for more than 5 days, keep seedlings in shipping container and place in cold storage at 35 degrees to 45 degrees F. If cold storage is not feasible, heel planting stock in for a period not to exceed 2 weeks. *Refer to Michigan NRCS Conservation Sheet #612A- Tree/Shrub Planting for: Reforestation, Windbreaks and Wildlife for details on heeling-in.*
- Roots of bare-rooted stock shall be kept moist and protected from freezing during planting operations by placing in a water-soil (mud) slurry, peat moss, sphagnum moss, super-absorbent (e.g., polyacrylamide) slurry or other equivalent material. (Note: Do not soak trees in water for more than 4 hours.)

- Rooting medium of containerized and balled and burlapped stock shall be protected from excessive heat and freezing and kept moist at all times by periodic watering.

Planting Requirements for Woody Planting Stock

- Stock shall not be planted when the soil is frozen or dry. Rooted stock will be planted in a vertical position with the root collars approximately level with or slightly below the existing ground line.
- **Seedlings:** The planting trench or hole must be deep and wide enough to permit roots to spread out and down without J-rooting or L-rooting. If the roots are too long for the planting equipment, minimal pruning of small end roots may be needed. Do not prune back into the main root system or more than 25% of the total root length. Pack soil around each plant firmly to eliminate air pockets after planting. *Refer to Michigan NRCS Conservation Sheet #612A-Tree/Shrub Establishment for Reforestation, Windbreaks and Wildlife for planting details.*
- **Cuttings:** Plant cuttings within 2 days of collection or shipping arrival in the spring before June 1. Plant in firm ground with 1” of cutting exposed above ground.
- **Containerized trees:** Dig a hole slightly larger than the container diameter. Gently remove plants from containers before placing in the ground and firmly pack soil around roots to eliminate air pockets. Before planting, loosen any spiraling or compacted roots. Water should be applied generously.
- **Balled and burlapped trees:** When handling stock, never lift a tree at the stems or trunk. Handle stock at the root ball. Dig a hole 1 1/2 times as wide as the root ball and about the same depth as the root ball. Remove any rope, wire, or plastic twine from the tree. Pull back burlap around trunk and fold down once in the hole. Carefully place the tree in the hole and firmly pack soil around roots to eliminate air pockets. Water should be applied generously.

Direct Seeding Guidelines

General Guidelines for Seed Selection, Storage and Testing

- Direct seeding may be used as an alternative to planting cuttings or rooted woody plants. Direct seeding may be less likely to establish woody plants than planting seedlings because seed germination and survival is less predictable and seed loss from rodents, insects and other predators can be high. *Follow guidelines in Michigan NRCS Standard #490 – Forest Site Preparation for establishing trees/shrubs through natural seeding.*
- Seed may be obtained from commercial seed sources or collected from wild plants. If purchased seed is to be used, acquire locally adapted seeds and plan shipping of seed to coincide with planting.
- Inspect seed by selecting at least 10 randomly selected seeds per bushel or pound. Crack or cut seeds open to be sure seed is filled, moist, normal colored, and not damaged by insects or mold. If seed appears to be non-viable, increase the seeding rate by the percentage of non-viable seed from the tested seed. Floating in water can separate black walnut and oak (acorn) seed that has not filled or has been damaged by insects.
- Acorns of most species in the white oak group have little or no dormancy and should be planted as soon as possible after collection in the fall.
- If possible, seed should be planted immediately after collection. Spring seedings (before April 30) will be less susceptible to rodent damage than fall seedings (after October 1) but may need stratification, depending on species.
- Store all seed in a cool dry place in porous bags (onion or burlap) at temperatures between 35 and 40 degrees F. but no more than 50 degrees F.
- All species except oak acorns should be kept dry. Oak acorns should be re-hydrated by soaking in cold water for 4-24 hours as soon as possible after collection or delivery and stored

at a moisture content of greater than 25% at a temperature of between 35 degrees and 40 degrees F. until planting.

- Some seeds require a dormancy and require a stratification period. **Refer to *The Woody Plant Seed Manual, USFS Misc. Publication #654 for requirements on all species. This reference is also available on-line at the following web address: <http://www.wpsm.net/index.html>***

Site Preparation

- For direct seeding to be successful, heavy weed growth and sod must be controlled. **Refer to *Michigan NRCS Standard #490 – Forest Site Preparation for guidelines on preparing seedbeds for direct seedings.***
- To improve seed germination and plant survival, the site should be kept bare and free of grass and weed cover before and 2 years after direct seeding is completed. This will help keep mice and voles away from the site, allowing germinated seedlings a chance to survive. Mowing and/or spraying approved herbicides should be utilized to keep the site clean.
- Application of an approved rodenticide to protect germinating seed from pests may be necessary if rodent populations are high. Application of all pesticides will conform to the label and will be applied in accordance with Federal, State and local laws and ordinances.

Seeding Rates and Planting Requirements

- Hand plant or drill in rows at a minimum rate of 3,000 viable seeds per acre of heavy-seeded (oaks, walnut, hickory, butternut) species and a minimum rate of 4,500 viable seeds per acre for light-seeded species (maples, cottonwood, ashes, basswood, pines, black cherry and spruces). Broadcast plantings should be done at a minimum rate of 30,000 viable seeds per acre for heavy-seeded species and 45,000 viable seeds per acre for light-seeded species. Mixtures of at least 5 species are recommended to increase species diversity. **Refer to: *Table 2- Hardwood Seeding Rates***
- Depth of planting for heavy-seeded species will be approximately 2 times the seed diameter. Plant all heavy-seeded species at 2 inches if seed predation and/or low soil moisture are anticipated. Light-

seeded species may be drilled or sown directly on the surface of the soil and covered to the prescribed depth recommended in the Woody Plant Seed Manual.

- If possible, seed that is broadcast will be disked in and cultipacked or rolled to create a firm seedbed.
- The following chart shows row spacing and seed spacing combinations that will result in about 3,000 seeds per acre when drilled or hand planted in rows:

Row/Seed Spacing for 3,000 seeds/acre

Row Spacing (feet)	Seed Spacing (feet)
6	2.4
7	2.0
8	1.8
9	1.6
10	1.5
11	1.3
12	1.2
13	1.1
14	1.0
15	1.0
16	0.9
17	0.9
18	0.8

**Survival Guidelines:
Tree/Shrub Plantings:**

Practice	Survival Percent
311- Alley Cropping 380-Windbreaks/Shelterbelts Visual Screens Sound Barriers Snow Protection Living Snow Fence	90% of all plants living and no two plants missing together within a row
391-Riparian Forest Buffer 422-Hedgerow Planting 562-Recreation Area Improvement 580-Streambank/Shrln. Protection 612- Tree/Shrub Establishment 644-Wetland Wildlife Habitat Mgt. 645-Upland Wildlife Habitat Mgt.	80% of all plants living and evenly distributed over the entire planted area.

TABLE 1 –SOME NATIVE TREE / SHRUB SPECIES THAT PRODUCE WILDLIFE FOOD/HABITAT

Species: Tree (T) Shrub (S)	Shade: Tolerant (T) Moderate (M) Intolerant (I)	Used By: Birds (B) Mammals (M)	Site: Wet (W) Moderate (M) Dry (D) All (A)
Alder, Speckled (T)	M	B	A
Arrowwood (S)	M	B	D
Aspen, Quaking (T)	I	B,M	M,D
Beech (T)	T	B,M	M,D
Buttonbush (S)	I	B	W
Black Cherry (T)	I	B,M	M,D
Black- haw (S)	M	B,M	W,M
Black Walnut (T)	I	M	W,M
Buffaloberry (S)	I	B,M	A
Bur Oak (T)	M	B,M	A
Butternut (T)	I	M	M,D
Chokeberry (S)	M	B,M	W,M
Common Elderberry(S)	M	B,M	A

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Coral-berry (S)	M	B,M	M,D
Cranberry, High bush (S)	M	B,M	W,M
Dogwood, Alternate-leaved (T)	T	B,M	W,M
Dogwood, Gray (S)	M	B,M	A
Dogwood, Red-osier(S)	I	B,M	A
Dogwood, Silky (S)	I	B,M	W,M
Elderberry, Common (S)	T	B,M	W,M
Hackberry (T)	M	B,M	M
Hawthorn (T)	M	B,M	W,M
Hazelnut, American and Beaked (S)	I	B,M	M,D
Hemlock, Eastern (T)	T	B,M	A
Hickory, Pignut (T)	M	M	M,D
Hickory, Shagbark(T)	M	M	M,D
Mapleleaf Viburnum (S)	T	B,M	M,D
Mountain Ash, American (T)	M	B,M	A
Nannyberry (S)	M	B,M	W,M
Pin Oak, Northern (T)	I	B,M	M,D
Red Cedar, Eastern (T)	I	B,M	M,D
Red Oak (T)	I	B,M	M,D
Sand Cherry	I	B,M	D
Serviceberry	T	B,M	M,D
Sumac, Staghorn (S)	I	B,M	M,D
Swamp White Oak (T)	M	B,M	W,M
Tamarack (T)	I	B	W,M
White Cedar (T)	T	B,M	W,M
White Oak (T)	M	B,M	M,D
White Pine (T)	T	B,M	A
White Spruce (T)	T	B,M	A
Wild Crabapple (T)	I	B,M	M,D
Wild Grape	M	B,M	M,D
Wild Plum (T)	I	B,M	M,D
Winterberry (S)	M	B,M	W,M

TABLE 2 - HARDWOOD SPECIES SEEDING RATES (Note: walnut and all hickory species are husked-See Woody Plant Seed Manual for seeding rates on additional species)

Common Name	Scientific Name	Range of Seeds/Lb.	Avg. Seeds/Lb.	Lbs/Ac. For 3000 Seeds/Ac	Lbs/Ac. For 4500 Seeds/Ac
Bitternut Hickory	<i>Carya cordiformis</i>	125-185	156	20	30
Black Oak	<i>Quercus velutina</i>	125-400	245	13	20
Black Walnut	<i>Juglans nigra</i>	11-100	40	75	112
Bur Oak	<i>Quercus</i>	40-145	75	40	60

	<i>macrocarpa</i>				
Black Cherry	<i>Prunus serotina</i>	2800-13,800	5370	0.6	0.8
Mockernut Hickory	<i>Carya tomentosa</i>	34-113	90	34	51
Northern Red Oak	<i>Quercus rubra</i>	75-256	125	24	36
American Beech	<i>Fagus grandifolia</i>	1,300-2,300	1,600	1.9	2.9
Pin Oak	<i>Quercus palustris</i>	320-540	410	8	12
Shagbark Hickory	<i>Carya ovata</i>	80-150	100	30	45
Shellbark Hickory	<i>Carya laciniosa</i>	25-35	30	100	150
Sugar Maple	<i>Acer saccharum</i>	3,200-9,100	6,100	0.5	0.75
White Ash	<i>Fraxinus americanar</i>	5,500-18,200	10,000	0.3	0.45
White Oak	<i>Quercus alba</i>	70-210	120	25	37.5

PLANS AND SPECIFICATIONS

Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation. Michigan NRCS Conservation Sheets #612A, Tree/Shrub Planting for Reforestation, Windbreaks and Wildlife and Conservation Sheet #612- Weed Control for Tree/Shrub Establishment may be used to develop planting plans.

Adapted tree species for the purposes outlined, spacing, planting methods, planting and seeding rates, cultural practices and maintenance requirements will be documented in the specifications. Variations in planting methods and species selection when seeding, interplanting, underplanting, and planting in open areas will be documented. Separate specifications may be prepared for each of these planting methods.

OPERATION AND MAINTENANCE

- Competing vegetation will be controlled for a minimum of 3 growing seasons after planting or until the woody plants are established.
- Re-planting will be required when “Survival Guidelines” listed under General Criteria are not achieved.
- Trees and shrubs will be protected from fire, insects, disease, and animals until established.

- Supplemental watering may be desirable to ensure adequate survival.
- Damaging pests will be monitored and controlled.
- Periodic applications of nutrients may be needed to maintain plant vigor.
- Pruning may be required to remove damaged, diseased or unwanted limbs to improve health and quality. **Refer to Michigan NRCS Std. #660-Tree/Shrub Pruning for further details.**

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