

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE SPECIFICATIONS**

WINDBREAK/SHELTERBELT ESTABLISHMENT

(Ft.)

CODE 380

GENERAL SPECIFICATIONS

Procedures, technical details, and other information listed below provide additional detailed guidance for carrying out selected components of this practice. This material supplements the criteria and considerations listed in the conservation practice standard.

WINDBREAK/SHELTERBELT DESIGN

The number of rows and best adapted/suited species will be determined on-site. There is no one design that is ideal for every circumstance. Windbreak density depends on plant spacing with the rows, number of rows, plant species (shrub, hardwood, or evergreen). As a minimum 2 rows of evergreens shall be planted unless the site conditions are too restrictive or the barrier's only purpose is as a visual screen.

Location

Avoid creating blind corners at road intersections. Windbreaks on the windward side of a road should have the nearest row about 150 feet from the edge of the right-of-way. Windbreaks on the leeward side should have the nearest row about 50 feet from the edge of the right-of-way.

- Field Windbreaks – As a minimum the windbreak should be located on the west and south sides of the area to be protected. When windbreaks are a part of a wind erosion control system, the interval between belts will be determined by use of the wind erosion equation.
- Structure and Recreational Area Windbreaks – The windbreak should be located on the north, west, and south sides of the area to be protected. The area to be protected will fall within a leeward distance of 10H. Ideally, the row with the tallest trees should be 2-5 H from the primary objects or areas to be protected.
- Livestock Protection and Living Barns – The windbreak should be located to the north, west and south of the livestock use area. For a living barn the east side can also be protected. The area to be protected will fall within a leeward distance of 10H. Position the row containing the tallest trees 2-5H from the primary area to be protected and the most windward row 100-200 feet from the windward edge of the protected area.
- Visual Screens – Plantings should be located closer to the observer than to the area to be screened.
- Noise Barriers – Plantings should be located closer to the noise source than to the receiver.

- Air Quality Screens and Barriers – To improve air quality, the planting should be located so as to interrupt the wind movement between the source of the air quality problem and the area to be protected. When practical, plantings should be both upwind (to disrupt air flow, increase turbulence over the area, and to increase dilution of the contaminant and odors) and downwind (to intercept contaminants and odors). The windbreak interval should be less than 10H depending in site conditions and related supporting conservation practices. Generally locating the downwind barrier/screen as close to the source as possible is preferred.

When planting windbreaks around poultry houses, the closer the windbreak is positioned to the poultry house, the better the odor, dust and ammonia will be trapped and dispersed. However, the windbreak should be placed a minimum of 50 feet from the sidewalls and 80 feet from the ends of the houses for access. The nearest row of windbreak plantings should be set back from tunnel-style houses by a distance that is at least 10 times the exhaust fan diameter (in feet). Any closer to the ventilation fans will cause the plants to become desiccated from the higher wind speed. Plantings for curtain-style houses should be planted on both the windward and leeward sides of the houses to interrupt wind movement over the houses and to intercept odors and particulates. Care must be taken to not create such a quiet air movement zone over the houses to the point that heating of the houses will occur.

- Snow Deposition Control – For snow distribution across a field, the interval between barriers will not exceed 20H. For snow accumulation, the windward row will be at least 100 feet from the area to be protected.
- Living Snow Fence – The windbreak must be located on the north side of an east-west road. The tree closest to the road should be located 200 feet from the center line of the road to be protected.

Arrangement and Density

For adequate protection of a site from the “end-effect” and changes in wind direction, extend the length of the windbreak 100 -150 feet beyond the area to be protected.

Shrubs or evergreens will be planted on the outside rows of plantings of 3 or more rows. If the windbreak will have only one shrub row, it should be planted on the windward side. If two shrub rows are used, plant one on either side.

Tall growing deciduous trees will be planted in the center row or rows in plantings of three or more rows.

Trees with an overtopping crown spread will either: 1) not be planted next to an evergreen row, or 2) not be planted within 16 feet of an evergreen row.

When two or more rows have the same within-row spacings, stagger planting locations in adjacent rows so that the trees in one row will be planted in the opening of the other row.

Density depends on the planting spacing, number of rows, and plant species. For low density windbreaks use the wider spacings and for high density windbreaks use the closer spacings. The table below ([Table 1](#)) provides density guidelines for the different windbreak/shelterbelt purposes.

Between-row spacings will accommodate the equipment used for maintenance by adding 4 feet to the equipment width.

TABLE 1- Windbreak/Shelterbelt Establishment Densities & Planting Spacings

Windbreak Purpose	Windbreak Density	Additional Criteria
Wind Protection	Medium	For farmsteads and feedlots, 3-5 rows are preferred.
Noise Screening	High	High-speed traffic: 65-100' width Moderate-speed traffic: 20-25' width
Visual Screening	Medium - High	One row of evergreens may be sufficient.
Air Quality – Odors & Chemical Drift		
Windward side of source	Medium	
Leeward side of source	Medium - High	
Air Quality – Particulates		
Upwind of source	Medium	
Downwind of source	Medium - High	
Snow Deposition		
Distribution	Low – Medium	
Accumulation	Medium	
Living Snow Fence	Medium	A minimum of 2 rows of evergreens and one row of shrubs is desirable.
Carbon Storage	Appropriate for species growth needs	
Between and Within Row Spacing Ranges by Planting Stock Species and Height at 20 Years		
	Within Row Spacing	Between Row Spacing
Shrubs and broadleaf trees <15' tall	4' – 6'	10' – 20'
Shrubs and broadleaf trees 15'-20' tall	6' – 12'	10' – 20'
Broadleaf trees >20' tall	10' – 20'	15' – 25'
Conifers <35' tall	10' – 15'	10' – 20'
Conifers >35' tall	10' – 20'	15' – 30'

Species Selection

Match the species to the intended purpose(s), site/soil conditions, and other factors such as maintenance needs, wildlife use, aesthetics, etc. See [Table 2](#) for species adaptability.

Priority should be given to use plant materials that have been selected and tested in tree/shrub improvement programs. When possible, care should be taken that the seed sources come from the same geographic area in which the seedlings will be planted.

Seedlings grown by the Texas Forest Service and local commercial nurseries will be acceptable. Seedlings obtained from other sources should be from sources within a 150-mile North-South zone of the planting site. Containerized stock from commercial nurseries must be suited for the "Hardiness Zone" of the site. This information is generally provided on a tag attached to the tree.

Consideration must be given to the species' susceptibility to common, locally used pesticides. See [Table 3](#).

TREE PLANTING

Seedling Quality

Only quality seedlings should be planted. General standards for quality seedlings are given below:

CRITERIA	HARDWOOD	
	EVERGREEN	D
• Minimum root collar diameter	1/8"*	1/4"*
• Preferred height	5-14"	16-30"
• Root length	5-8"	8-10"
• Minimum number of lateral roots	5	5
• Seedling stems	Stiff and woody	
• Terminal bud	Inactive and "hardened off".	

In addition to the criteria above, containerized (tubes, plugs, blocks) seedlings must have containers that are firm, moist and durable enough to withstand the planting process.

Planting hardwood cuttings will be limited to cottonwood, hybrid poplar, willow and their varieties. Cuttings should be about 20" long and no less than 3/8" in diameter.

Seedling Care

Proper care of seedlings from pickup to planting is critical to the success of tree planting. Every effort must be made to plant immediately after receiving the seedlings. If planting will occur within one week, the seedlings must be kept cool and moist – from 32°F to 40°F. Seedlings should be kept no longer than two weeks out of cold storage. If storage will be longer, heel in the seedlings until ready to plant. Seedlings that are "heeled in" should be planted within 4 weeks.

Only as many seedlings as will be planted that day should be taken to the site. These must be kept cool and shaded. Keep the seedling roots thoroughly moist at all times. Cuttings must be soaked in water. Keep bags closed and tape any tears or breaks.

Prune roots only if it is necessary to ensure proper planting. Pruning will be done with sharp shears or knives. Roots will not be torn.

Pine taproots will not be pruned any shorter than 8 inches.

Hardwood taproots may be pruned to a minimum of 8 inches to facilitate planting. If lateral roots are pruned, pull the roots down along the tap root and cut at the length of the tap root. The top should also be pruned to maintain the original top-to-root ratio.

Cull all seedlings that do not meet the quality criteria above.

Site Preparation

Site preparation may include the whole field, strips, or individual treatments such as mulching where the tree is to be planted. Prepare the site mechanically, by applying herbicides, or a combination of the two.

If possible, the planting site should be prepared the fall before planting.

When necessary, water conservation measures such as scalping, v-ditching (2" depth), installing landscaping fabric, and/or mulching should be included. A disking will be needed before planting

if fabric mulch is used. Anchor the edges of the fabric with soil or 6"+ metal pins. Fabric may be installed either before or after planting.

If the site is in small grain, corn or similar clean tilled crop, and is reasonably weed free, plant trees into the stubble. It may, however, be necessary to disk a narrow strip to kill weeds or volunteer grain, or to prevent residue from clogging the planter. If fabric mulch is used, disking will be needed.

Sites in row crops should require little site preparation other than light tillage, particularly if fabric mulch will be used.

In areas of grass, the competing vegetation should be controlled by tillage or application of an approved herbicide 3 feet on each side of the planting row.

All brush species such as mesquite or cactus must be completely controlled before planting.

- **Sandy Soils**

When fabric mulch is not used, maintain as much organic matter on the soil surface as possible.

If necessary, plant a cover crop the summer before the trees are planted to protect them from blowing sand.

- **Loamy, Clay Loam, and Clayey Soils**

To create a desirable rooting zone and to increase moisture retention, tree rows should be chiseled or subsoiled, particularly if they are compacted or have a hardpan or dense clayey subsoil within 10 inches of the surface. Conditions such as the potential for excessive erosion must be considered when planning site preparation.

Planting Specifications.

- **Bare Root Stock, Small Containerized Seedlings, and Cuttings.** Machine or hand planting with any tool that will accomplish satisfactory results is acceptable. Furrows and holes must be free of litter and large enough to adequately accommodate the roots. Soil around the roots must be firmed and free of air pockets.

Planting Conditions: Seedlings should be planted when the weather and soil conditions are optimum. Critical planting days will be avoided.

DAY CLASS	WEATHER - SOIL CONDITIONS
Good	Temperature: 35° - 60° Relative Humidity: >40% Wind Speed: <10 mph Soil Moisture: Abundant
Marginal	Temperature: 60° - 75° Relative Humidity: >40% Wind Speed: 10 – 15 mph Soil Moisture: Marginal
Critical	Temperature: >75° Relative Humidity: <40% Wind Speed: Any Soil Moisture: Low to Absent Soil Temperature: Freezing

Planting Depth.

- Bareroot seedlings. (pine and hardwoods). Plant about 1" deeper than they grew in the nursery bed (evidenced by the root collar). In deep sands, plant seedlings about 2-4" deeper.
- Longleaf bareroot seedlings. Plant with the root collar at or slightly below the soil surface so that the bud will be exposed after the soil has settled.
- Small containerized seedlings. Plant with the top of the soil plug at or slightly above the soil surface.

- Hardwood cuttings. Plant about 15" deep.

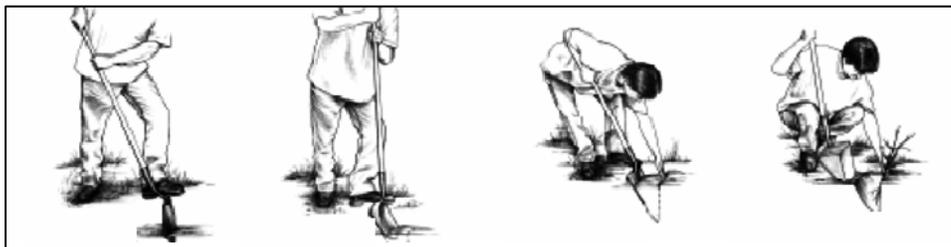
Planting Methods:

Hand planting with a planting bar (dibble), planting shovel, post hole digger, or auger is suited for small acreage, most hardwood planting, and/or where the ground too heavily littered for machines. The dibble or shovel blade must be both long and wide enough to achieve the needed planting depth without "J-" or "L" rooting. Care must be taken when using hand or tractor mounted post hole diggers or augers to prevent glazing or plastering the sides of the hole which can inhibit root development into the surrounding soil. If necessary, break-up sides before planting. Pack seedlings loosely into planting bags and keep them in the bags until planted – do not carry in the hand. Minimize tearing of the roots when removing seedlings from the bag. Do not ball or twist the bare roots to facilitate planting, lateral roots should be placed in a more or less natural position. Firm the soil around the slit or hole...

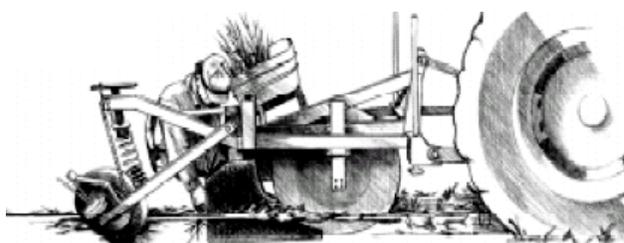
Figure 1– Dibble Planting Bare Rooted Stock



Figure 2 – Shovel Planting Bare Rooted Stock

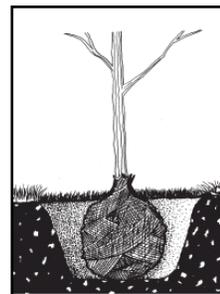


A **machine planter** is pulled behind a tractor or bulldozer and makes a narrow slit or furrow with a modified subsoiler point. A person riding on the planter places one seedling at a time in the slit. The furrow is then closed tightly around the seedling by two rollers or packing wheels to lock the seedling in place. Keep seedlings in planter box until planted. Check planting performance frequently to ensure proper planting quality, particularly when soil type, texture, moisture or debris changes on the site.



Condition	Result
Soil too dry	Poor compaction
Improper seedling release	L or U Roots, Angled or too shallow seedling
Inadequate weight or pressure	L or U Roots, Poor compaction
Packing wheels not set correctly	Too far: Poor compaction, Too close: Damaged seedlings

- **Balled or Container Stock.** Plant when soils are moist. Do not handle trees when temperature is below freezing. Dig the hole twice as wide as the root ball and roughen the sides and bottom to facilitate root penetration. If necessary, loosen root mass. In well drained soils, plant at or slightly below the depth the stock grew in the nursery or container. In poorly drained soils, position the tree with the root collar slightly above the soil surface. Pack soils around the roots firmly by tamping and watering. Form a ridge around the tree large enough to catch and hold water.



Planting Dates.

- Bare Root Stock
Optimum: January through mid-March
Maximum: Mid-December through March (April West Texas)
- Small Containerized Seedlings (Plugs, tubes, blocks)
October through March (April West Texas)
- Large balled or containerized stock may be planted year-round if watered frequently.

MAINTENANCE

Protection

Protect the windbreak from domestic livestock.

Protect from rodents with wire cages, tube protectors, or similar devices. Fine mesh wire on the bottom of a livestock protection fence may be also used. Mowing in and around the planting site may be necessary to prevent the creation of hiding habitat for rodents. Protection should be carried out until the trees or shrubs are fully established.

If needed, adequate protection against wind damage will be provided with the use of fabric screens, protective barriers, shingles, shakes, cones or shade cards.

Weed Control

Control competing vegetation for at least 3 feet on each side of the tree row until the trees have developed a 6 foot dripline. Control may be accomplished using approved chemicals or by mowing or shredding. Noxious weeds will be controlled.

Water Conservation/Supplemental Watering

Water Conservation/Supplemental Watering will be provided as needed and feasible. Measures may include:

- Use of organic mulches. Coarse textured mulches such as bark should be applied to a 3 to 4 inch depth around the tree or seedling to the drip line. Fine textured mulch should be applied to a 2 inch depth. Care should be taken to not apply the mulch in contact with the tree, especially if supplemental watering is to be used.

- Inorganic mulches (fabric). Biodegradable fabrics can be applied in strips or in 4 foot circles or squares around individual trees. Adequate anchoring and full soil contact are important. Do not apply in floodplains.
- Supplemental watering. Soil moisture should be monitored during the first 1 -3 growing seasons to adequately determine the need for supplemental watering. Water can be applied by hand watering, furrow, sprinkler or drip systems. Apply slowly and deeply to encourage deep rooting. When needed, water to meet the tree's needs for 1 to 4 weeks at a rate of 1 to 3 inches per week. If hand watering, 5 to 7 gallons per square yard is the equivalent of 1 inch. A few heavy, deep waterings are preferred over several light waterings. Care should be given to not over water clayey soils.

FIGURE 3 – Ecoregions of Texas

Refer to the figure below when determining species adaptability for planting.

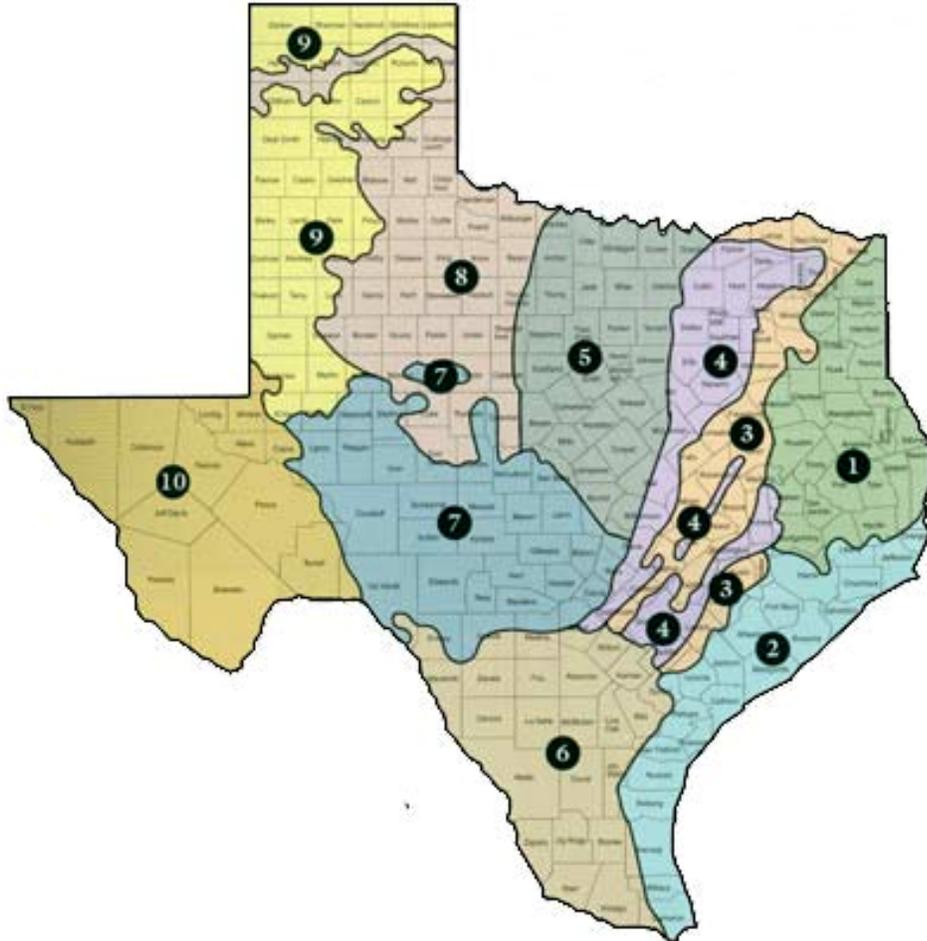


TABLE 2 – Tree Species Adaptability

Species	Ecoregion(s)*	Soil Texture	Height at 20 years	Growth Rate	pH Range	Comments
Elm						
American	1,2,3,4,5,6,7,8,10	Not demanding	50	Rapid	5.5 – 8.0	
Cedar	1,2,3,4,5,6,7	Not demanding	35	Rapid	5.2 – 8.0	
Lacebark (Chinese)	All	Not demanding	40	Rapid	4.8 – 7.0	
Oak (White Oak Group)						
Bur	1,2,3,4,5,7,8,9	Not demanding	25	Slow	4.5 – 7.5	Species useful to wildlife for either or food or cover
Chinkapin	1,4,5,7,10	Medium	30	Moderate	6.5 – 8.0	Species useful to wildlife for either or food or cover
Live	1,2,3,5,6,7,	Medium to coarse	25	Rapid	4.5 – 7.0	Species useful to wildlife for either or food or cover
Oak (Red Oak Group)						
Shumard	1,2,3,4,5,7,8,9	Medium to coarse	35	Moderate	5.0 – 7.6	Species useful to wildlife for either or food or cover
Southern red	1,2,3,4	Not demanding	35	Slow	5.0 – 7.0	Species useful to wildlife for either or food or cover
Texas red	1,2,3,4,5,7	Fine	40	Rapid	4.5 – 5.5	Species useful to wildlife for either or food or cover
Pecan / Walnut						
Sweet pecan	All	Not demanding	35	Slow	4.8 – 7.5	Species useful to wildlife for either or food or cover
Black walnut	1,2,3,4,5,7,8,9	Medium	35	Rapid	5.5 – 8.0	
Little walnut	3,4,5,6,7,8,9,10	Not demanding	20	Slow	5.5 – 7.0	
Plum						
American	1,3,4,5,7,8,9	Medium to coarse	24	Moderate	5.5 – 7.5	Species useful to wildlife for either or food or cover
Chickasaw	1,2,3,4,5,7,8,9	Medium to coarse	12	Moderate	5.1 – 7.3	Species useful to wildlife for either or food or cover
Mexican	1,2,3,4,5,7,9	Fine to medium	8	Moderate	6.1 – 7.8	Species useful to wildlife for either or food or cover
Oklahoma	1,3,4,5,7,8,9	Coarse	5	Moderate	5.0 – 7.5	Species useful to wildlife for either or food or cover
Sumac						
Flameleaf (Shining, Winged)	1,2,3,4,5,7,8,9,10	Not demanding	8	Moderate	5.3 – 7.5	Species useful to wildlife for either or food or cover
Skunkbush	1,2,4,5,7,8,9,10	Medium to coarse	4	Slow	6.6 – 8.2	Species useful to wildlife for either or food or cover
Conifers						
Aborvitae						
	All	Not demanding	25	Slow	5.2 – 7.0	
Cypress						
Arizona	All	Medium to coarse	25	Slow	7.0 – 8.5	Do not plant north of Amarillo
Leland	All	Fine to medium,		Rapid	5.5 – 7.8	
Juniper						
Eastern redcedar	All	Not demanding	25	Slow	4.7 – 8.0	
Rocky mountain	8,9,10	Medium to coarse	25	Slow	5.0 – 8.5	
Pine / Spruce						
Afghan	3,4,5,6,7,8,9,10	Medium	35	Rapid	7.0 – 8.5	Not cold tolerant - do not plant north of Plainview
Aleppo	2,6	Medium to coarse	30	Rapid	7.0 – 8.5	
Austrian	9	Medium	35	Moderate	5.5 – 7.5	
Digger	9,10	Medium to coarse	20	Slow	6.0 – 8.3	
Limber	9,10	Medium	25	Slow	5.7 – 6.5	
Loblolly	1,2,3,4,5,7,8	Not demanding	50	Rapid	4.5 – 7.0	
Pinyon	9,10	Not demanding	20	Slow	6.1 – 8.4	
Ponderosa	5,8,9,10	Moderate to coarse	40	Moderate	4.9 – 9.0	
Species	Ecoregion(s)*	Soil Texture	Height at	Growth Rate	pH Range	Comments

20 years						
Scotch	9	Medium to coarse	30	Moderate	4.5 – 7.5	
Shortleaf	1,2,3,4	Not demanding	60	Rapid	4.5 – 6.5	
Virginia	1,2,3,4	Not demanding	25	Rapid	4.6 – 7.5	
Spruce, blue	9	Medium to coarse	20	Slow	5.5 – 7.5	Plant north of Amarillo only
Apricot	1,3,4,5,8,9	Medium	15	Rapid	6.0 – 7.5	Species useful to wildlife for either or food or cover
Ash, green	1,2,3,4,5,8,9	Not demanding	35	Rapid	3.6 – 8.0	
Catalpa	1,2,3,4,5,7,8,9	Medium to coarse	20	Rapid	5.5 – 7.5	
Cottonwood	All	Not demanding	80	Rapid	4.5 – 7.0	
Crabapple	7	Not demanding	20	Moderate	5.0 – 7.0	
Desert willow	5,7,8,9,10	Coarse	15	Rapid	7.0 – 9.0	
Dogwood, flowering	1,3	Medium	30	Moderate	6.0 – 7.0	
Eucalyptus	2,6	Not demanding	40	Rapid	5.0 – 8.5	
Fourwing saltbush	4,5,6,7,8,9,10	Not demanding	4	Slow	6.6 – 9.5	
Hackberry	5,8,9	Not demanding	25	Moderate	6.0 – 8.0	Species useful to wildlife for either or food or cover
Honeysuckle (bush)	5,8,9,10	Medium to coarse	6	Rapid	7.0 – 8.5	Species useful to wildlife for either or food or cover
Hybrid poplar	All	Not demanding	40	Rapid	6.0 – 7.0	Short lived. Choose clone for locality
Lilac	5,8,9	Not demanding	8	Moderate	5.6 – 7.8	Species useful to wildlife for either or food or cover
Locust, honey	All	Medium	35	Rapid	5.1 – 8.0	
Mulberry, red	1,2,3,4,5,6,7,8,9	Not demanding	45	Moderate	4.4 – 7.5	Do not plant north of Amarillo
Oleander	2,4,5,6	Not demanding	12	Rapid	5.5 – 7.8	Not cold tolerant
Osage orange (Bois D'arc)	All	Not demanding	20	Moderate	4.4 – 7.8	Species useful to wildlife for either or food or cover
Persimmon, texas	2,3,4,5,2,7,8,9,10	Not demanding			4.4 – 7.3	
Pyracantha	All	Fine to medium	8	Moderate	5.6 – 8.0	Species useful to wildlife for either or food or cover
Sand cherry	5,8,9	Medium to coarse	3	Moderate	5.3 – 7.5	Species useful to wildlife. Short lived
Redbud, eastern	1,2,3,4,5,7,8,9,10	Medium to coarse	16	Slow	4.5 – 7.5	
Redbud, Texas	4,5,7,8	Not demanding	12	Rapid	6.0 – 7.5	
Sugarberry	All	Fine to medium	35	Rapid	4.8 – 7.0	
Sweetgum	1,2,3,4	Not demanding	45	Rapid	4.5 – 7.5	
Sycamore	1,2,3,4,5,7,8,9	Medium to coarse	40	Rapid	4.5 – 7.0	
Winterberry euonymous	All	Not demanding	10	Slow	5.0 – 8.0	Species useful to wildlife for either or food or cover

* See [Figure 3](#)

TABLE 3 – Species/Herbicide Interaction

Chemical	Susceptibility
2,4-D	<u>Susceptible:</u> Ash, Black locust, Cottonwood, Honeylocust, Sumac, Sycamore, Willow
Hexazinone	<u>Susceptible:</u> Ash, Redbud, Elm, Hackberry, Juniper, Locust, Boxelder, Mulberry, Oaks, Osage orange, Persimmon, Willow, <u>Partially Susceptible:</u> Easter redcedar, Sumac,
Trifluralin	<u>Susceptible:</u> New transplants
Metolachlor	<u>Partially Susceptible:</u> Oak
Glyphosate	<u>Susceptible:</u> Honeysuckle, Oak, Pine, Redbud, Willow, <u>Partially susceptible:</u> Ash, Elm, Black locust, Sumac
Dichlobenil	<u>Susceptible:</u> Elm, Spruce, Sumac, Pine
Fluazifop-P	<u>Susceptible:</u> Boxelder, Cottonwood, Elm, Poplar,
Clopyralid	<u>Susceptible:</u> Boxelder, Redbud, Locust
Picloram	<u>Susceptible:</u> Honeylocust, Sumac, Maple, Oaks, Black locust, Plum, <u>Partially Susceptible:</u> Ash, Eastern redcedar
Triclopyr	<u>Susceptible:</u> Cottonwood, Elm, Black locust, Honey locust, Oak, Pine, Poplar, Sumac, Willow <u>Partially Susceptible:</u> Ash, Eastern redcedar
Dicamba	<u>Growth suppression:</u> Cedar, Plum, Redcedar, Yaupon, <u>Susceptible:</u> Ash, Cottonwood, Elm Honeylocust, Black locust, Oaks, Pine, Poplar, Sumac, Sycamore
Imazapyr	<u>Susceptible:</u> Ash, Boxelder, Cottonwood, Mulberry, Oaks, Persimmon, Poplar, Sumac, Sycamore, Willow <u>Partially Susceptible:</u> Elm, Locust, Redbud, Pine
Tree seedlings are most sensitive to drift injury after bud break; even low levels of growth regulator herbicides (2,4-D©, Banvel©, and Crossbow©) used on row crops will cause injury. Glyphosate injury to hardwood seedlings is becoming more common as this product becomes more widely used.	