

## Availability/Sources

Finding a source for the species you want may seem like the last step of the tree selection process, but plant availability can often dictate which species you are able to plant. Time of year you want to plant, where you live, and the quantities and sizes of trees you wish to purchase can all affect which species are available to you. So where to start?

One of the best sources of plant material is your state’s local Department of Forestry. State nurseries often offer a large selection of hardwood and evergreen seedlings to landowners each spring. Many states post their availability and pricing online along with information about each species, planting tips, and other useful information. Department of Forestry trees are typically sold as bare root seedlings, requiring only minimal cold storage until planting.

But what if you want to plant a specific cultivar or larger plant material not offered by your state nursery? Wholesale tree nurseries throughout the mid-Atlantic region offer a wide-selection of cultivars and species in a range of sizes (from 1-year-old seedlings to 5-6 year-old saplings.) Larger nurseries sell in bundles of 10-100 plants – the larger the bundle, the lower the per-plant price. Smaller nurseries offer many hard-to-find cultivars. Large and small nurseries can typically ship plant material to any location with great success.

There are several ways to identify wholesale nurseries selling the species and/or cultivars you are looking for:

- [Contact your local extension agent!](#) These individuals often know growers personally or maintain lists of potential sources you can contact.
- [Contact your state or regional nursery and landscape association](#) for a list of reputable wholesale suppliers! The name of these associations is typically the name of your state followed by “nursery and landscape association” (e.g. Virginia Nursery and Landscape Association). NOTE: Tennessee is home to some of the largest and most affordable wholesale nurseries supplying trees to the mid-Atlantic. Visit the Middle Tennessee Nursery Association website for a list of some of these companies.
- [Do an online search](#) for the cultivar you are interested in! Many small nurseries maintain websites with extensive information about the plant varieties they grow. Email these growers, ask questions about what they offer, explain to them how you plan to use the trees, and develop a relationship. Growers are often your best source of information. They may suggest other cultivars you haven’t considered.
- [Visit websites for associations and/or research programs](#) focusing on the tree crops you are interested in! Examples include: the Northern Nut Growers Association, the North American Paw Paw Association, the Kentucky State University Paw Paw Page, and the North American Maple Syrup Council (to name a few).

**No matter who you purchase from, time of year is critical for availability!** Spring is when the largest variety of plant material is available. Forestry offices and wholesale nurseries often run out of or quit selling trees by late spring/early summer. It is best to start looking for a supplier and to place your order in January-March. Fall planting is an option, but you may have fewer suppliers to choose from.

*NOTE: If you are working within a cost share grant, you may have purchasing guidelines and/or suggested suppliers. Be sure to consult your grant administrator.*

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## **Selected Resources**

*Manual of Woody Landscape Plants – Their Identification, Ornamental Characteristics, Culture, Propagation and Uses.* Sixth Ed. 2009. Michael A. Dirr. Stipes Publishing, Champaign, Illinois

*Native Trees, Shrubs, and Vines for Urban and Rural America – A Planting Design Manual for Environmental Designers.* 1988. Gary L. Hightshoe. John Wiley & Sons, Inc. New York.

*Native Trees for North American Landscapes – From the Atlantic to the Rockies.* 2004. Guy Sternberg with Jim Wilson. Timber Press, Portland, OR.

*Virginia Tech Dendrology Factsheets:* <http://dendro.cnre.vt.edu/dendrology/factsheets.cfm>

*USDAFS Silvics of North America:* [https://www.na.fs.fed.us/spfo/pubs/silvics\\_manual/table\\_of\\_contents.htm](https://www.na.fs.fed.us/spfo/pubs/silvics_manual/table_of_contents.htm)

*USDA Plant Database, Factsheets, and Plant Guides:* <https://plants.usda.gov/java/>

*University of Florida, IFAS Extension, Environmental Database Information Source (EDIS):* <http://edis.ifas.ufl.edu/>

*Natural Resources Conservation Service Plant Materials Program:*<https://www.nrcs.usda.gov/wps/portal/nrcs/pmreleases/plantmaterials/pmc/northeast/mipmc/cp/>

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## **Tree Selection Guide for Mid-Atlantic Silvopastures – *Our first 20 trees***

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Selecting the best tree species for your silvopasture can be an overwhelming task. With so many species to choose from and so many variables to consider, it can be hard to know where to start. This publication attempts to give you a starting point.

Over 80 tree species were considered for inclusion in this guide. The 20 species included were selected based on site conditions, physical characteristics most suitable for silvopasture systems (root structure, crown size and density, phenology, etc.), growth rate, timber and non-timber product value, and availability in the marketplace. In addition, this guide focuses on species native to North America that are less susceptible to extreme weather events like drought or wind/ice when possible. Cultivars that offer superior disease resistance, growth form, and/or product characteristics most suitable for use in a silvopasture system are listed.

**NOTE:** *Some species not included may be the best choice for your silvopasture. Please use this guide as a reference only.*

### Site Preferences

Understanding your site and selecting the trees that prefer those conditions is one of the most important factors in choosing species. Trees planted in their preferred environment are more resilient, longer-lived, and faster growing. Take time to become familiar with the moisture level of your soils as well as your soil pH. Your local university or extension office can help with soil testing. Be sure to test the soil of each unique area and in several locations throughout the field(s) you intend to plant.

### Tolerances

Familiarity with extreme conditions possible on your site is critical. Many regions experience regular drought or are prone to periodic flooding. Some sites are exposed to heavy winds and winter ice storms. Be sure to select trees that can withstand these conditions if they are a threat in the field(s) you plan to plant. Shade tolerance is important if you will be establishing species that grow slower or will be partially shaded by other trees in or adjacent to the silvopasture.

*NOTE: Black walnut and butternut produce the allelopathic chemical ‘juglone’ which can harm plants growing near them. Plant species can have some sensitivity to juglone. Check with your local forester or extension agent before interplanting trees with black walnut, butternut, or other juglone-emitting species.*

### Characteristics

Competition between tree growth and forage growth must be carefully managed in any silvopasture system. This is accomplished through tree selection and spacing. Some tree species have physical characteristics such as deep rooting habit, late leaf out and early leaf drop, and an open narrow crown that allow for optimal forage growth. This guide includes trees with both a light and moderate impact on forage growth. Planting tree species with impact on forage growth may require wider spacing of trees and/or fewer animals per acre.

### Utility/Maintenance/Special Considerations

A key benefit of silvopasture systems is diversifying your revenue stream. All of the tree species listed here have potential economic value as timber, pulp, non-timer products (fruit, nuts, etc.), or fodder. However, they may also have a cost associated in the form of pest/disease issues or maintenance requirements such as pruning. This guide gives utility and maintenance information and outlines special considerations for each species listed. Be sure to weigh these costs and benefits carefully when selecting your trees.

# TREE SELECTION GUIDE FOR MID-ATLANTIC SILVOPASTURES - *Our first 20 trees*

Common Name	Scientific Name	Cultivars	Site Preferences								Physical Characteristics						Utility/Maintenance					Special Considerations	
			Native	Hardiness Zone	Soil pH	Soil Moisture	Heat/Drought	Flood	Shade	Wind/Ice	Root Structure	Crown Phenology	Crown Width	Crown Density	Growth Rate	Mature Height (ft)	Markets	Other Benefits	Fodder Product	Coppice Potential	High Rate of CO2 Sequestration		Pest/Disease Issues
<b>EVERGREEN</b>																							
Shortleaf Pine	<i>Pinus echinata</i>	-	1	6-9	4.0-6.0	D-M,X	M	N	N	T-Wind, N-Ice	1	-	2	1	1	60-100	WP,NT	W,WB			●	2	Maintains tall, clear trunk w/o early pruning
Pitchlob Pine	<i>Pinus rigida x taeda</i>	-	2	4-7	Acidic	D-M,X	T		M		3	-	2	1.5	1	40-60	WP	EC,W					Combines the fast growth rate and drought resistance of loblolly pine, with the cold tolerance of pitch pine. A good choice for cooler zones in the Mid-Atlantic.
Eastern White	<i>Pinus strobus</i>	Fastigiata (narrow/columnar when young)	1	3-7	4.5-6.5	D-M	N	N	M	N	2	-	2	2	1	50-80	WP,NT	W				2.5	Can quickly reseed in open fields - bush hogging may be required if animals do not browse seedlings
Loblolly Pine	<i>Pinus taeda</i>		1	6-9	Acidic	M	M	N	N	N	3	-	1	1	1	60-90	WP,NT	EC,W			●	1.5	Grows well in red-clay soils; 'genetically superior' seedlings (increased growth rate - dbh and ht) may be available through your local forest service office
<b>DECIDUOUS</b>																							
Sugar Maple	<i>Acer saccharum</i>	Caddo, Commemoration, Legacy (heat and drought resistant); Temples Upright (narrow crown)	1	4-8	3.7-7.3	M-X	N	N	T	T	3	2	3	3	2.5	75-120	WP,FW,NT	FC,W				2	Maple syrup production at 10"dbh or greater; consult local extension office for varieties exhibiting high sugar content; use heat-tolerant cultivars for zones 7-8
Paw Paw	<i>Asimina triloba</i>	Many	1	5-8	4.7-7.2	M-X	N	N	T	N	2	1	1	1.5	2.5	15-40	NT	FC	F	●		1	Use superior fruiting varieties/cultivars for marketable fruit; trees can sucker and produce colonies; small container-grown plants transplant best
Hardy Pecan	<i>Carya illinoensis</i>	Many	2	5-9	6.5-7.5	M-X	M	M	N	T	1	2	3	1	2.5	70-100	WP,FW,NT		N			3	Select cultivars/varieties are recommended for marketable nuts and disease/pest resistance
Persimmon	<i>Diospyros virginiana</i>	Hicks, Meader, Pieper, Rnkwitz, Early Golden, John Rick, Killen, Miller, and Woolbright	1	4-9	4.7-7.5	D-M	M	M	T	T	1	2	1	1	2.5	35-60	WP,FW,NT	B,EC,W	F	●		1.5	Use cultivars or grafted trees (D. kaki (Asian) grafted onto D. virginiana) for marketable fruits; trees may sucker and form colonies
Thornless Honey Locust	<i>Gleditsia triacanthos var. inermis</i>	Millwood, Calhoun, Hershey (seed pods w/ high sugar content)	1	4-9	5-8	D-M	T	T	N	T-Wind, M-Ice	2.5	1	2	1	1	50-70	WP, FW	B,EC,FC,WB	F,L	●		2	If planting for fodder, use cultivars that produce seed pods with high sugar content, avoid cultivars from horticulture suppliers that are bred for little to no fruit production. Avoid clay soils.
Butternut	<i>Juglans cinerea</i>	Kenworthy, Mitchell	1	3-7	6.0-7.0	D-M,X	M	M	N	N	1.5	1	3	1	2	40-60	WP,NT		N	●		3	Develops a short trunk w/o early pruning; nuts are milder and sweeter than black walnut; loves limestone soils; susceptible to 1000 cankers disease
Black Walnut	<i>Juglans nigra</i>	Many	1	4-9	4.6-8.2	M,X	M	M	N	T	1.5	1	3	1	1	50-75	WP,NT		N	●	●	3	Maintains a tall, clear trunk often w/o early pruning; loves limestone soils; susceptible to 1000 cankers disease; extremely valuable wood, esp. mature veneer
Yellow Poplar	<i>Liriodendron tulipifera</i>		1	4-9	4.5-6.5	M-X	N	N	N	N	2.5	1.5	2	2	1	70-90	WP	B,FC		●		1.5	Tall, clear trunk often free of branches w/o early pruning
Red Mulberry	<i>Morus rubra</i>	Johnson, Weisman, Cooke, Wellington	1	5-9	5.0-7.0	M	T/M	M	M	N	2	1	2	3	1	40-70	NT,P	W	F,L	●	●	2	
White Oak	<i>Quercus alba</i>		1	3-9	4.5-6.8	D-M,X	M	N	M	Y	2	2	3	2	3	50-80	WP,FW,NT	W,FC	N,L*	●		2	Some leaves persist in winter
Bur Oak	<i>Quercus macrocarpa</i>	Urban Pinnacle (narrow/pyramidal)	1	3-8	4.6-7.5	D-M	T	M	M	T	2	2	3	1	3	70-80	WP,FW,NT	FC,W,WB	N,L*			1	Favors limestone soils in upland sites; very drought resistant
Cherrybark Oak	<i>Quercus pagoda</i>		1	6-9	4.5-6.0	M,X	N	N	N	N-wind, T-ice	2		3		1	80-100	WP, FW	W	N,L*			2	Some leaves persist in winter
Northern Red Oak	<i>Quercus rubra</i>		1	3-7	4.3-7.3	D-M,X	N/M	N	M	T-wind, N-ice	3	2	3	3	1.5	60-75	WP,FW	FC,W	N,L*	●		2	
Shumard Oak	<i>Quercus shumardii</i>		1	5-9	5-7.6	D-M,X	T	M	N	T?	2	2	3	1.5	1.5	40-60	WP,FW	FC,W	N,L*			2	
Black Locust	<i>Robinia pseudoacacia</i>	Appalachia, Allegheny, Algonquin	1	4-8	5.1-7.7	D-M	T	N	N	N	3	1	1	1	1	30-50	WP,FW,P	B,EC,NF	L	●	●	3	Rot resistant wood. High protein forage, however toxicity can develop if animals consumer too much.
Baldcypress	<i>Taxodium distichum</i>	Shawnee Brave (pyramidal), Fastigiata (narrow/upright)	1	4-11	4.5-6.5	D-M	N/T	T	M	T	3	2	1	1	2	50-70	P	EC,FC		●	●	1.5	Cypress knees do not form on drier sites

**Native:** 1-native to mid-Atlantic, 2-native to North America, 3-not-native to North America; **Site:** U-upland, B-bottomland; **Moisture:** D-dry, M-moist, X-well-drained; **Tolerances:** T-tolerant; M-moderately-tolerant, N-not-tolerant; **Root Structure:** 1-taproot, 2-deep laterals/some shallow, 3-shallow rooting; **Phelology:** 1-late spring leaf out/early fall leaf drop, 2-mid-spring leaf out/mid-fall leaf drop, 3-early spring leaf out/late fall leaf drop; **Crown Width:** 1-less than 35 ft, 2-35-50 ft, 3-greater than 50 ft; **Crown Density:** 1-open branching/light shade; 2-moderate branching/shade; 3-heavy branching/shade; **Growth Rate:** 1-Fast, 2-Moderate, 3-Slow; **Markets:** WP-wood products, NT-non-timber forest products, FW-firewood, P-posts; **Other Benefits:** W-wildlife (>25 wildlife users), B-bee

forage, FC-fall color, EC-erosion control, WB-windbreak; **Fodder Product:** F-fruit, N-nuts, L-leaves; **Coppice Potential:** Y-yes, N-no; **Pests/Disease Issues:** 1-few, 2-some, 3-many

*\*Heavy consumption of oak leaves and acorns can be toxic to some livestock*