Hardy Ferns

Hardy ferns are tolerant of cold winter temperatures and can be grown outdoors year-round. Many ferns are both cold and heat tolerant — these make the best garden plants for the South. There are ferns that will grow in every area of South Carolina.

**Height/Spread**
While most ferns average between one and three feet tall and wide, some, such as resurrection fern, grow only a few inches tall. Others, like royal and ostrich ferns, can tower to six feet. Most ferns are slow growing and can take several years to reach their mature size.

**Culture**
All ferns prefer well-drained soil high in organic matter. For heavy clay soil, mix a 2-inch layer of composted pine bark or other organic material into the top 10 inches before planting to improve drainage. Poultry grit (crushed granite) also works well to improve drainage and should be used in addition to organic material, not as a substitute. Sandy soils also benefit from mixing in a 2-inch layer of organic material tilled in because it helps them retain moisture. It is wise to prepare a large area for ferns before planting, not just individual holes. This will help prevent water from filling the holes and rotting the roots. Ferns may also be grown in raised beds, which provide good drainage.

Most ferns require a moist, shady spot to grow — either in a wooded area or near the north side of a building. Many need plenty of moisture during the growing season and should be given an inch or more of water per week if not supplied by rains.

While most of the ferns discussed here prefer acidic soils with a pH of 4 to 7, both southern and northern maidenhairs as well as ebony spleenwort prefer a more alkaline soil with a pH of 7 to 8. Have a soil test done to check the pH, and mix ground limestone or crushed oyster shells at recommended rates into the planting area if your soil is acidic. For more information, see HGIC 1652, *Soil Testing* and HGIC 1650, *Changing the pH of Your Soil*.

Fertilizing should be done in spring, just after new growth has begun. Ferns are very sensitive to over fertilizing, so it is best to use a slow release fertilizer, such as Osmocote 14-14-14. Complete organic fertilizers also work very well. Always follow package instructions for fertilizer rates.

A 2- to 3-inch layer of leaves or pine straw, applied in the spring and in the fall, is an excellent mulch for ferns. Ferns grown in wooded areas benefit from the falling leaves and pine needles in the fall. See the chart below for cultural requirements of specific ferns.

**Propagation**
Ferns may be propagated by division or from spores (see THE FERN LIFE CYCLE, below). For the home gardener, division is the most practical method.

How do you know when your ferns need dividing? If you’ve noticed that the center of the clump is hollow or dead and/or the leaves are smaller than usual, it’s probably time to divide. You may also divide if you simply want more plants.
Generally, division is done every three to five years, and can be done right after the first frost in the fall (when the leaves have dropped). Do not fertilize fall transplants. Ferns may also be divided in very early spring, just as the new growth is emerging, if care is taken not to damage the delicate new leaves.

There are three different methods for dividing ferns. Rhizome division involves ferns that grow from thick underground stems called rhizomes. Clump division is a method used for ferns with fibrous roots. Edge division involves cutting divisions from the outside edges of a clump. For information on how to divide, see HGIC 1150, Dividing Perennials.

The Fern Life Cycle
Ferns reproduce in a unique way. Instead of growing from seeds, ferns grow from spores. Ever wonder what the little brown dots are on the back of a fern leaf? They’re spore cases, full of many spores. When a spore germinates, it becomes a small leaf-like structure called a prothallium. The prothallium produces both male and female sexual organs. When the female organs become fertilized by the male organs, small fern plants begin to grow. In some ferns it can take as long as six months for the first fronds (leaves) to appear after sexual fertilization.

Landscape Use
Ferns give a delicate and airy quality to a shady garden. Many will grow in full shade, in areas where other plants will not grow. Cinnamon, royal and southern shield ferns will grow in full sun if constant moisture is available. For an elegant groundcover in a shady spot, try hay scented, ostrich, sensitive, broad beech or southern shield ferns. Fine textured ferns contrast nicely with the large leaves of hostas, the shiny leaves of hellebores and the colorful leaves of heucheras.

Problems
Ferns have few pest problems if care is taken to meet their growing requirements. Maidenhair and ebony spleenwort ferns can sometimes get scale insects, which can be treated with horticultural oil or insecticidal soaps. Slugs will occasionally eat the young fronds of variegated shield, deer, hayscented or southern shield ferns. Diatomaceous earth works well on slugs. For more information on slugs, see HGIC 2357, Snails & Slugs in the

Home Garden. Foliar nematodes, which cause reddish brown areas between the leaf veins, can attack some ferns. Remove infected plants and destroy them. Do not put them into a compost pile. Check plants for pest problems before buying.

Fern Species
Southern Maidenhair (Adiantum capillus-veneris): This native fern grows 12 to 26 inches tall on thin wiry stems with delicate leaves. It grows in light to full shade with constant moisture, in the mountains and piedmont only. Propagate through rhizome division.

Southern maidenhair fern.
Joey Williamson, ©2008 HGIC, Clemson Extension

Northern or Common Maidenhair (Adiantum pedatum): This fern is also native to South Carolina. It grows 12 to 24 inches tall on thin, wiry stems. Fronds and leaves form a distinctive horseshoe shape. It is deciduous and grows in part to full shade in the mountains and piedmont only. This species also prefers constant moisture, but can withstand some drought. Rhizome division.

Northern or common maidenhair fern
Joey Williamson, ©2008 HGIC, Clemson Extension

Northern or common maidenhair fern
Joey Williamson, ©2008 HGIC, Clemson Extension
Ebony Spleenwort (*Asplenium platyneuron*): This fern has erect, dark evergreen fronds 6 to 20 inches tall. It is native throughout South Carolina. It prefers some sun to light shade, does not like wet soils. Propagate by rhizome division.

![Upright fronds of ebony spleenwort fern. Ted Bodner, Southern Weed Science Society, www.forestryimages.org](image)

Lady Fern (*Athyrium filix-femina*): This vigorous fern has upright, deciduous leaves 24 to 48 inches tall. Grow in light shade to full shade throughout South Carolina except for the coast. Although it prefers constant moisture, lady fern can stand some drought. Propagate by rhizome division.

![Lady fern frond. Chris Evans, River to River CWMA, www.forestryimages.org](image)

Japanese Painted Fern (*Athyrium niponicum* ‘Pictum’): The deciduous fronds of this fern are a mix of silvery-gray, green and burgundy on dark purple stems. It grows 10 to 15 inches tall. Grow in light to full shade anywhere in South Carolina except for along the coast. Prefers constant moisture, but can withstand some drought. Rhizome division.

![Glossy, evergreen holly fern fronds. Karen Russ, ©2008 HGIC, Clemson Extension](image)

Holly Fern (*Cyrtomium spp.*): Bold, coarse textured evergreen leaves make these large ferns a feature in the landscape year-round. Holly ferns grow up to 30 inches tall depending on species. They grow in light to full shade, and will grow throughout South Carolina. Provide supplemental water during dry periods. Rhizome division.

![Holly fern fronds. Karen Russ, ©2008 HGIC, Clemson Extension](image)

Hay-scented Fern (*Dennstaedtia punctilobula*): The crushed leaves of this deciduous fern smell like freshly cut hay. Fronds grow 18 to 30 inches tall. Grow in light to full shade. Prefers constant moisture, but can stand some drought. Hay-scented fern is native in the mountains of South Carolina and can be grown in the mountains and piedmont.

![Hay-scented fern. Chris Evans, River to River CWMA, www.forestryimages.org](image)
**Scaly Male Fern (Dryopteris affinis):** This tall, vase shaped, semi-evergreen fern will grow 3 to 4 feet tall. Grown in light to full shade, with constant moisture, anywhere in South Carolina except the coast. Clump division.

![Upright, vase-shaped form of scaly male fern.](image)

Wikimedia Commons Jesmond Dene GNU Free Documentation License 1.2

**Autumn Fern (Dryopteris erythrosora):**
The new spring leaves of this evergreen fern are coppery-pink in spring, turn green in summer and rusty-brown in fall. It grows 24 to 36 inches tall. Grow in light to full shade. It will grow throughout South Carolina. Prefers constant moisture, although it can withstand some drought. Clump division.

![Winter coloration of autumn fern fronds.](image)

Joey Williamson, ©2008 HGIC, Clemson Extension

**Male Fern (Dryopteris filix-mas):** This vase-shaped evergreen fern grows 3 to 5 feet tall. Grow in light to full shade, with constant moisture, anywhere in South Carolina except the coast. Clump division.

![Stately, vase-shaped form of male fern.](image)

Karen Russ, ©2008 HGIC, Clemson Extension

**Southern Wood Fern (Dryopteris Ludoviciana):**
This evergreen fern is native to the Coastal Plains of South Carolina, in swamps and along stream banks. It grows 3 to 4 feet tall. Grow in light to full shade anywhere in South Carolina. Provide supplemental water during dry periods. Clump division.

**Marginal Wood Fern (Dryopteris marginalis):**
The leathery, evergreen fronds of this fern grow 24 to 36 inches tall. Grow in light to full shade. Prefers constant moisture, but will withstand some drought. Marginal wood fern is native to the mountains and piedmont of South Carolina and will grow throughout the state except for along the coast. Clump division.

![Young plant of marginal wood fern.](image)

Chris Evans, River to River CWMA, www.forestryimages.org
Ostrich Fern (Matteuccia struthiopteris): While ostrich fern can grow 4 to 6 feet tall in the wild, it is generally shorter in gardens. This large deciduous fern is vase shaped and will reach greatest height with ample water and rich soil. Grow in light to full shade, with constant moisture, in the mountains and piedmont only. Propagate by edge division.

Sensitive Fern (Onoclea sensibilis): This coarse-textured, deciduous fern grows 24 to 30 inches tall. Grow in light to full shade. Sensitive fern prefers constant moisture but can stand some drought. It is native throughout South Carolina. Edge division.

Cinnamon Fern (Osmunda cinnamomea): This upright, deciduous fern is native throughout South Carolina. It grows 24 to 36 inches tall. Plant in sun to full shade, with constant moisture if planted in sun. Cinnamon fern can stand some drought in shade. Edge division.

Royal Fern (Osmunda regalis): Native throughout South Carolina, this large, coarse textured, deciduous fern can grow 3 to 6 feet tall if given ample water. Plant in sun to full shade, with constant moisture. Edge division.

Broad Beech Fern (Phegopteris hexagonoptera): This upright growing, deciduous fern grows 12 to 24 inches tall. Grow in light to full shade. Prefers constant moisture but can stand some drought. Can be grown throughout South Carolina, except for the coast. Rhizome division.
Christmas Fern (*Polystichum acrostichoides*): Evergreen, upright, leathery fronds grow 24 to 36 inches tall. Grow in light to full shade. Prefers constant moisture but can stand some drought. This fern is native throughout South Carolina. Rhizome division.

![Christmas fern in late fall.](image)

Karen Russ, ©2008 HGIC, Clemson Extension

Japanese Tassel Fern (*Polystichum polyblepharum*): The dark, evergreen, lacy leaves of this fern grow upright 24 to 36 inches tall. Grow in light to full shade. Prefers constant moisture but can stand some drought. Will grow throughout South Carolina, except for along the coast. Rhizome division.

![Dark, lacy leaves of Japanese tassel fern.](image)

Millie Davenport, ©2008 HGIC, Clemson Extension


![Korean rock fern growing in the Atlanta Botanical Garden.](image)

Wikimedia Commons, Daderot
GNU Free Documentation License, Version 1.2

Southern Shield Fern (*Thelypteris kunthii*): This deciduous fern has light green fronds that grow 24 to 36 inches tall. Plant in sun to full shade, with constant moisture in sun. It can stand some drought in shade. Native to the Coastal Plain, and can be grown throughout South Carolina. Rhizome division.

![Southern shield fern.](image)

Southern Shield Fern, ©2008 HGIC, Clemson Extension

Sources for Ferns

Quality garden centers carry a variety of ferns, generally in larger sizes than can be obtained through mail order. The mail order sources listed below stock many hard-to-find ferns.

Chuck Plemmons Perennials
275 South Blackstock Rd.
Spartanburg, SC  29301
864/576-1374
http://www.hostaman.com

Hickory Mountain Plant Farm
148 Hadley Mill Rd.
Pittsboro, NC  27312
919/542-0360
http://www.hostafarm.com
Meadowbrook Nursery We-Du Natives
2055 Polly Sprout Rd.
Marion, NC  28752-7349
828/738-8300
http://www.we-du.com

Mountain Mist Nursery
10 Log Gap Rd.
Fairview, NC  28730
http://www.mountainmistnursery.com

Native Gardens
5737 Fisher Ln.
Greenback, TN  37742
865/856-0220

Niche Gardens
1111 Dawson Rd.
Chapel Hill, NC  27516
919/967-0078
http://www.nichegdn.com

Plant Delights Nursery
9241 Sauls Rd.
Raleigh, NC  27603
919/772-4794
http://www.plantdelights.com

Sunlight Gardens
174 Golden Ln.
Andersonville, TN  37705
800/272-7396
http://www.sunlightgardens.com

Woodlanders, Inc.
1128 Colleton Ave.
Aiken, SC  29801
803/648-7522
http://www.woodlanders.net

Prepared by Rebecca Slater, HGIC Information Specialist, Clemson University. (New 11/03. Images added 05/09.)

This information is supplied with the understanding that no discrimination is intended and no endorsement by the Clemson University Cooperative Extension Service is implied. All recommendations are for South Carolina conditions and may not apply to other areas. Use pesticides only according to the directions on the label. All recommendations for pesticide use are for South Carolina only and were legal at the time of publication, but the status of registration and use patterns are subject to change by action of state and federal regulatory agencies. Follow all directions, precautions and restrictions that are listed.