



Hardy Fern

Culture Sheet

Note: Production tips are to the best of our knowledge and experience. They are offered for consideration and investigation, but we do not warrant or assure any results.

Containers: Grow in pots quart - 1 gallon; intended eventually for garden transplant.

Media: High water-holding capacity, good aeration and drainage. ARC Ferns, uses a custom mix comprising of 50% Canadian peat, 20% PBH, 30% composted bark, lime, gypsum, wetting agent, 1# trace elements and 1# 0-46-0 at target pH 5.5. Sand is not recommended as it will inhibit drainage. Incorporated slow-release fertilizers are not recommended.

Light: Is variety-specific, but 2,500 – 4,000 FC should be appropriate for most types. This will require at least some shade in winter and possibly more in summer.

Fertilizer: Use clear water upon transplant and for the first few weeks. Once significant rooting has occurred, switch to low-moderate rates of a balanced liquid fertilizer. Normally, a 20-20-20 (summer) or a 20-10-20 (winter) should do. In some locations, a light Cal-Mg supplement may be required. Alternate with clear water every 3-4 applications to prevent salt build-up. Feed very lightly through winter. If using slow-release, top dress in spring and early fall at low label rates.

Temperature: See hardiness table for specifics. Best production temperatures in the growing season are between 70 - 80 F daytime and over 50 F night-time. Make sure you understand the difference between evergreen / deciduous ferns and keep them separate (for water management reasons), if possible. Over dormancy, the cooler the vernalization period (within each variety's hardiness capability), the more colourful the spring flush will be.

Water: Maintain constant moisture in growing season (fall and spring). Irrigate as lightly as possible through winter, as long as no drought is allowed.

Growing Schedule: While location-dependent, the key is to allow full rooting and sufficient growth before dormancy. Where rain is a concern, it may be better to bump-up our 72 cp into an intermediate size (in the greenhouse) before planting the gallons. Most northern growers plant gallons in June, while Southern growers will plant in Oct-Dec. Quarts can be planted in the fall or winter, especially if they are kept from dormancy. Keep moderate moisture through winter, then push in spring and allow 6-12 weeks for flush.

Disease: Most hardy ferns have low disease propensity under moderate weather conditions. Root rots and *Botrytis* may occur in cold, wet conditions. Under heat-stress, watch for Fern *Anthracnose* and *Rhizoctonia* aerial blight.

Pests: Caterpillars will chew foliage and leave green fecal piles; they are easily recognizable by scent. Otherwise, no insect pests are expected.

Pesticides / insecticides: Ferns are sensitive to most liquid fungicide formulations. This includes all oils, soaps, and adjuvants. We therefore recommend using only powder formulations of labelled fungicides. Some harsh insecticides (such as Orthene) have fern label restrictions and should not be used. ARC Ferns, LLC will gladly share, upon request, its fern pest and disease control history. We cannot, however, guarantee success

and will not be liable, in any case, for damages caused. Always read and follow labels; use pesticides at your own risk.

Disorders: The most common error in fern production is over-fertilization. Symptoms of this are hard, dark green, stunted growth and necrotic frond edges. Severe cases may cause plant decline and death. This usually occurs when slow-release fertilizers are incorporated into the growing mix or in cases of excessive overall fertilization. If necessary, leach well with clear water and maintain EC < 1.0 until fresh growth emerges. Also, keep in mind that different ferns have different habits, especially with regards to emergence from dormancy. It is not unusual for one group of ferns (for example *Athyrium* *ff*) to emerge from dormancy several weeks before another (*Matteucia* *spp.*) As ferns are fairly primitive plants, they are mostly sensitive to pre-emergent herbicides. During the dormant season, all precautions must be taken to avoid weed infestations. Attached to this sheet, you will find a record of academic trials, but ARC Ferns, LLC cannot attest to their accuracy or safety in commercial applications.

Evergreen ferns will stay green all winter, though very little growth will occur, and they will not show any colour. Herbaceous ferns will die back to the ground and then re-emerge in the spring. Whenever possible, these should be separated as the evergreen ones will require more water over the dormant season and are likely to emerge sooner.

Reference Table: Hardiness in ground. HP = Herbaceous perennial / EG = Evergreen.

Common	Latin	Hardiness	Habit	Season	Fronds
Auriculate Lady	<i>Athyrium otophorum</i>	4-9	Medium / Spreading	HP	Light green / purple
Autumn	<i>Dryopteris erythrosora</i>	4-9	Medium / Spreading	EG	Copper red
Christmas	<i>Polystichum aristichoides</i>	3-9	Slow / Clumping	EG	Leathery, dark green
Cinnamon	<i>Osmunda cinnamomea</i>	3-10	Medium / Upright	HP	Green – brown
E. Indian Holly	<i>Arachnoides simplicor</i>	6-9	Slow / Spreading	EG	Variegated
Eastern Wood	<i>Dryopteris marginalis</i>	2-9	Slow / Upright	EG	Blue-green, lance shaped
Fortune's holly	<i>Cyrtomium fortunei</i> var. <i>clivicola</i>	5-10	Medium / Spreading	EG	Compact, matte light-green
Hart's Tongue	<i>Asplenium scolopendrium</i>	4-9	Slow / Spreading	EG	Short tongue-shaped
Japanese Holly	<i>Cyrtomium falcatum</i>	5-10	Medium / Clumping	EG	Shiny, leathery, dark-green
Japanese Beech	<i>Thelypteris decursive-pinnata</i>	4-9	Fast / Upright	HP	Bright green, narrow
Japanese Painted	<i>Athyrium nipponicum</i> 'Pictum'	5-9	Fast / Spreading	HP	Green gray, red stem
Korean Rock	<i>Polystichum tsus-simense</i>	5-9	Slow / Spreading	EG	Shiny, dark green
Lady Fern	<i>Athyrium Filix Femina</i>	4-9	Fast / Clumping	HP	Lacy, bright green
Ostrich	<i>Matteuccia struthiopteris</i>	2-10	Fast / spreading	HP	Feathery, bright green
Royal	<i>Osmunda regalis</i>	2-10	Medium / Clumping	HP	Light green, purple
Shaggy Shield	<i>Dryopteris atrata</i>	5-9	Fast / Clumping	EG	Medium green, shield shaped
Southern shield	<i>Dryopteris ludoviciana</i>	4-9	Medium / Upright	EG	Dark green, shield shaped
Southern wood	<i>Thelypteris kunthii</i>	7-10	Fast / Upright	HP	Large, bright green
Tassel	<i>Polystichum polypepharum</i>	5-9	Slow / Spreading	EG	Dark green, shiny, hairy