

Cultural Guidelines for Commercial Production of Interiorscape *Hedera*¹

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Introduction

The genus *Hedera* belongs to the family Araliaceae and comprises about 11 species. Among them, *H. helix*, commonly known as English ivy, is native to temperate regions of Europe, northern Africa, and western Asia and is probably the most significant species used worldwide as a foliage plant. It is commonly grown as a potted (Figure 1) or hanging basket plant and can be used effectively in dish gardens and other combination planters. In large interior plantscapes, English ivy makes a good ground cover or it can be trained into formal shapes on trellises or made into topiary figures.

Two noticeable characteristics of English ivy are its evergreen leaves and the fact that it develops both juvenile and adult foliage. Juvenile leaves, usually 3- to 5-lobed, are produced on flexible stems that may form roots on every node while growing as a ground cover or a climbing vine. Adult leaves are produced on stiff, nonclimbing and rootless stems and are elliptic-lanceolate and not lobed. After adult foliage appears, flowers may develop in globose umbels, usually in compound panicles, with each umbel carrying 10–15 flowers.

According to the American Ivy Society (Naples, FL), ivy leaf shapes can be classified into nine categories in reference to the Pierot System: variegated (V), birds foot (BF), fan (F), curls (C), heart-shapes (H), miniature (M), ivy-ivies

(I), adult (A), and oddities (O) (www.ivy.org). Plants with different leaf shapes and variegation patterns, if stable in propagation, could potentially become new cultivars. The American Ivy Society is the International Registration Authority for new ivy cultivar registration. There are more than 200 cultivars of *H. helix* varying in leaf sizes, shapes, colors, and variegation patterns; all were selected from sports.



Figure 1. Commercial production of English ivy (*Hedera helix*).

English Ivy is capable of adapting to a wide range of environmental conditions; it has been listed as an invasive plant in many states but not Florida. This article is intended to describe common species and cultivars grown in the

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foliage plant industry, provide guidelines for their culture and interior use, and list physiological problems that may be encountered during production and interiorscape use. It is suggested that the potential invasiveness of this species be noted at the retail level and that buyers be advised to only use this plant where it cannot become a nuisance.

Species and Cultivars

See Table 1.

Cultural Guides

Propagation

Juvenile English ivy is propagated by cuttings (Chen and Stamps, 2006); tissue culture is not currently used commercially. Both tip and nodal cuttings root readily with single node cuttings more commonly used commercially than double node cuttings. Cuttings are rooted singly in cell plugs but multiply in 4-, 6-, or 8-inch pots. The rooting media can be formulated by using 40% to 60% Canadian peat combined with an equal volume of perlite and vermiculite. Media should have good water-holding capacity and aeration, with soluble salts between 1-3 dS/m and a pH of 5.5 to 6.5. Cuttings root best under mist in a shaded greenhouse or shadehouse under a light level of 1000–1500 fc and temperatures between 70°F to 86°F.

Production

The best quality English ivy is produced if temperatures are between 70°F and 90°F and the relative humidity is between 60% and 100% (Chen et al., 2005). Plant quality and growth rates begin to decline when day temperatures routinely exceed 95°F or night temperatures drop below 65°F. Controlled-release or water-soluble fertilizers, or a combination of both, can be used for ivy production. A fertilizer with N-P₂O₅-K₂O ratio at 3-1-2 or 2-1-2 should be used at the rate of 25 pounds of N per 1,000 square feet annually. Table 2 provides a guide for determining if English ivy is appropriately fertilized based on leaf analysis. Light intensity should range from 1500 to 2500 fc. The media should dry slightly before re-irrigating as plants grow poorly if the media is kept extremely wet or dry. *Xanthomonas* leaf spot disease may occur if overhead irrigation is used.

Shipping and Interior Care

Use protective sleeves when shipping finished *H. helix*. High quality plants will be retained if shipping temperatures can be kept between 50°F and 60°F. Once plants are placed indoors, it is advisable not to re-pot or fertilize them for about four weeks. This allows the plant to recover from

any shipping stress. Plants should not be fertilized if soluble salts are 2.0 dS/m or higher. If soluble salt levels are greater than 3.0 dS/m, leaching the media with water may help reduce potential leaf necrosis or damage to the root system. Keep the media moist during the first two to three weeks indoors, and then water less frequently. Whether plants are in hanging baskets or free-standing pots, English ivy will retain its aesthetic appearance under light levels as low as 100 fc if temperatures are kept between 70°F and 80°F. Pinch any long stems to promote a bushy growth habit. Overcrowded plants can be repotted at any time of the year.

Physiological Problems

See Table 3.

Literature Cited

- Chen, J., McConnell, D.B., Norman, D.J., and Henny, R.J. 2005. The foliage plant industry. *Horticultural Reviews* 31:45–110.
- Chen, J., and Stamps, R.H. 2006. Cutting propagation of foliage plants. pp. 203-228. In Dole, J.M., and Gibson, J.L. (eds.) *Cutting Propagation: A Guide to Propagating and Producing Floriculture Crops*. Ball Publishing, Batavia, IL.

Table 1. A listing of most of the cultivars available in Florida as of 2004.

Cultivar	Characteristics
Anne Marie	5-lobed leaves with a white margin.
Asterisk	5- to 7-lobed leaves. Lobes are deep, very narrow and recurved.
California	Red tinged stems with olive green traditional leaves.
English	Standard 3- to 5-lobed and solid green leaves and white veins.
Eva	3-lobed, grey and green variegated leaves with a thin, white margin. Center lobe is twice as long as the other two.
Glacier	One of the oldest cultivars. 3- to 5-lobed, grey-green and silver variegated leaves. Shallow sinuses.
Gold Child	Larger, 3-lobed leaves with a gold border. Gold becomes creamy in heat.
Gold Dust	3- to 5-lobed leaves that are splashed with grey and gold splotches.
Golden Esther	Also known as 'Ceridwen.' Mostly gold leaves with a little green weeping in from the margins.
Greenheart	3-lobed solid green leaves with very shallow sinuses. Almost heart-shaped.
Hahns Self-Branching	Similar to 'English' but with more branches. Tends to tolerate brighter light than others.
Ingelise	3- to 5-lobed, small, bright green leaves with a definitive white border.
Ingrid Liz	3- to 5-lobed, olive-green and grey leaves with gold margins.
Kolibri	3-lobed, green and white marbled leaves.
Needlepoint	3- to 5-lobed, small, solid green leaves with deep and narrow sinuses.
Pittsburgh	3- to 5-lobed, glossy, solid green leaves. Vigorous.
Ralph	3-lobed, solid green leaves with the center lobe longer than the others.
Ritterkreuz	5- to 7-lobed, light green, star-shaped leaves. Center and side lobes are almost at right angles.
Sagittaeifolia	5- to 7-lobed leaves in shapes resembling birds feet. Variegated form also available.
Shamrock	3-lobed leaves, self-branching, and miniature. Lobes may be split. Margins are ruffled.
Sweetheart	Small, unlobed, heart-shaped leaves.
Telecurl	Twisted trunk, leaves, and stem. Dwarf form used in bonsai. 5-lobed leaves.

Table 2. Nutrient concentrations in leaves considered low, medium, and high for *Hedera* growth.

Nutrient	Low	Medium	High
Nitrogen	less than 2.5 %	2.5–4.5 %	greater than 4.5 %
Phosphorus	less than 0.3 %	0.3–0.9 %	greater than 0.9 %
Potassium	less than 1.5 %	1.5–4.5 %	greater than 4.5 %
Calcium	less than 1.0 %	1.0–2.0 %	greater than 2.0 %
Magnesium	less than 0.3 %	0.3–0.7 %	greater than 0.7 %
Sulfur	less than 0.3 %	0.3–0.5 %	greater than 0.5 %
Iron	less than 50 ppm	50–350 ppm	greater than 350 ppm
Manganese	less than 50 ppm	50–200 ppm	greater than 200 ppm
Zinc	less than 20 ppm	20–100 ppm	greater than 100 ppm
Copper	less than 5 ppm	5–25 ppm	greater than 25 ppm
Boron	less than 20 ppm	20–50 ppm	greater than 50 ppm

Table 3. Causes and effects of various physiological problems.

Symptoms	Probable Cause	Treatment
Thin, spindly growth.	Too little light with too much water and fertilizer.	Reduce water and fertilizer or move to a brighter location.
Leaf burn.	High soluble salts in potting media.	Use the pour-through method to check media soluble salts and maintain soluble salt levels between 1.0 to 3.0 dS/m.
Small yellow spots on the surface of leaves.	Edema occurs when more water is taken up by the roots than can be given off by the leaves. Certain leaf cells become engorged with water and swell.	Increase the temperature and ventilation around the plant to facilitate moisture loss through the leaves. Over-watered plants are highly susceptible to edema.
Loss of variegation in young leaves.	Very low light.	Move plant to brighter conditions.
Loss of variegation in older leaves.	Age, low light.	None, although brighter conditions may help.
Change in leaf shape/color.	Unstable cultivar.	Prune unwanted growth.
Slow growth and/or rooting.	High temperatures.	Lower temperatures and increase ventilation. Common in the south during summer.
Brown leaf edges.	High heat; spider mites.	Move to an area where temperatures are no higher than 85°F and increase the humidity. If spider mites are detected, wash leaves in 1% soap and water solution. Remove damaged leaves.