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Christmas Tree Species Profile: Korean fir *Abies koreana*

Bert Cregg, Ph.D. Michigan State University, Department of Horticulture and Department of Forestry

Recently we started a new series of articles for the *Great Lakes Christmas Tree Journal* profiling conifer species used as Christmas trees in the Great Lakes region. Some of the conifers we'll discuss in the series are well known and widely used as Christmas trees. Others are perhaps less familiar but possess attributes that make them interesting nevertheless. The goal of the species profiles is to provide growers with background information on interesting conifers including the ecological and cultural characteristics as well and some trivial or other interesting tidbits. This issue's featured conifer is Korean fir *Abies koreana*.



***Abies koreana* 'Aurea' is a popular form of Korean fir in the landscape nursery trade.**



This slow growing form of *A. koreana* makes an attractive foundation plant.

Botanical characteristics: In its native environment, Korean fir is a small to medium tree, growing up to 50–70'. As indicated by its common and scientific names, Korean fir is native to the Korean peninsula. The native range is relatively small and the species occurs only on the southern end of the Korean peninsula and on Jeju island, just south of the Korean mainland. Korean fir occurs in cool moist areas on mountainsides at elevations between 3,000' and 6,000'. Taxonomically, *Abies koreana* is classified within the genus *Abies* in the section *Balsamea*, along with *Abies fraseri*, *A. balsamea*, *A. lasiocarpa*, and *A. veitchii*. Like many other plants from that region of the world, Korean fir is sufficiently cold hardy (USDA Hardiness zone 4) to thrive in the Upper Midwest, including most of lower Michigan. Korean fir tends to break bud later than other firs making it less susceptible to late frost injury.

Seventy five years ago in the *Cultivated Conifers of North America*, Liberty Hyde Bailey, in typical understatement, described Korean fir as “Hardy and attractive.” Both adjectives are appropriate and go a long ways in explaining

continued interest in the species. First and foremost, *A. koreana* is one of the most forgiving firs in terms of site requirements. Korean fir will grow well on a range of sites and is less restrictive in its preferred sites than Fraser fir. Korean fir needles are often described as

recognizes their enthusiasm for Korean fir. “We started with 25 seedlings from the MSU exotic fir trial that we bought at a research auction”, Cathy remembers. “The seedlings had great, fibrous roots and grew into full, beautiful trees. We grew the first trees on to be 9–10' and we

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dark green but often range toward bright green. Needles are relatively short and distributed along the stem in a bottle-brush arrangement, giving the tree a characteristic texture.

Growers chime in: Anyone who has spent more than five minutes with Frank and Cathy Genovese of Candy Cane Christmas Tree farm in Oxford, Michigan

got great feedback from our customers. We asked some of them to keep the trees displayed until late January and they had great needle retention.” The Genovese’s continue to grow Korean fir and estimate it makes up about 20% of their choose and cut business. Dan Wahmhoff of Wahmhoff farms in Gobles, Michigan is also a Korean fir fan. “There are lots of

species profile

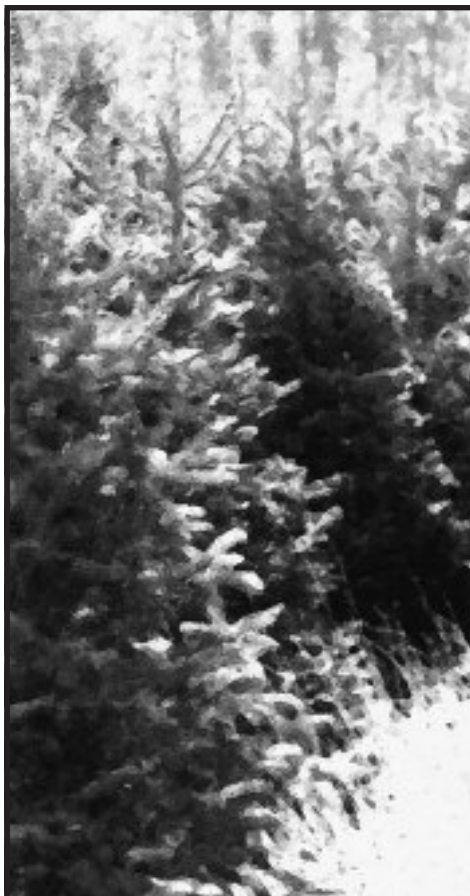
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Abies koreana x lasiocarpa. This hybrid combines the adaptability of Korean fir with the form and color of sub-alpine fir.

interesting exotic firs out there,” Wahmhoff notes, “but Korean is about the only one that grows fast enough to make any economic sense. We’ve grown 9–10 footers on about the same production cycle as our Frasers.”

In the interest of being “Fair and Balanced”, it should be noted that Korean fir can present challenges that may dampen some grower’s enthusiasm for the species. The most obvious issue with Korean fir is cones. Most people familiar with Christmas tree production in Michigan recognize the problem of precocious cone production in Fraser fir, however coning in Korean fir occurs even earlier in the tree’s development and more frequently than in Fraser fir. In fact, Korean fir’s propensity for profuse cone production has caught the eye of nursery growers over the years and sever-



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al ornamental cultivars of Korean fir have been selected for their distinctive cones (see below). Needle color can also be a potential issue for Korean fir. As noted earlier, Korean fir is sometimes described as dark green in the literature but, compared to many firs, bright green is probably a better description. As soil nutrients become limiting, Korean fir can quickly slip from bright green to a chlorotic yellow-green. Korean fir also has a bit of a reputation for producing squirrely leaders once pruned. Lou Waldock of Waldock farms in Howell, Michigan believes Korean tops can be tamed, however. "Sometimes the terminal leader can get a little curly," Waldock notes, "but we've had good success in training new leaders from laterals."

Hybrids on the horizon: Many fir species hybridize readily and Korean fir

is an obvious choice for hybridization since it cones readily and has many desirable adaptive and ornamental traits. Several Korean fir hybrids are available from seedling nurseries including *A. koreana x fraseri*, *A. koreana x veitchii*, and *A. koreana x lasiocarpa*. The goals of crossing species are usually to combine desirable traits, produce a plant that is intermediate between two species, or to produce 'hybrid vigor'— a cross that is superior to either parent alone. A hybrid of *A. koreana* and *A. lasiocarpa* (see photo) appears to combine desirable traits from both species, combining the adaptability of Korean with the bluish needles of sub-alpine fir. It is important to note that species hybrids can often produce surprises. For example, in the MSU exotic fir trials, Korean and Vietch

fir were consistently among the last species to break bud each spring—a desirable trait since it minimizes risk of late frost damage. Nevertheless, trees from a cross between Korean and Vetch fir broke bud two to three weeks *earlier* than trees from either parent species and were damaged by a late freeze in 2004. There are a number of possible causes for this phenomenon; the seed sources used to make the cross could have been different than the seed sources of the parent species tested or the cross produced a hybrid vigor (earlier budbreak than the parents) which in this case resulted in a negative trait. The take home message is that we cannot assume hybrids will be superior or even intermediate to the parent species. Each hybrid cross needs to be evaluated on its own merits.

The advertisement features a collection of images of horticultural supplies and equipment arranged around a central logo. On the left, there are images of shearing equipment (a trimmer and a pair of shears) with the caption "Shearing Equipment". In the center-left, there are images of wreath-making frames and machines with the caption "Clamp-Type Wreath Frames & Machines". In the center, there is an image of a rectangular shaker with the caption "Shakers & Other Equipment". To the right of the shaker is an image of a circular tree stand with the caption "Stands – Cinco, Yule Tree, Gunnard and More". Further right is an image of a polyurethane baler on a stand with the caption "Polyurethane Balers & Netting". On the far right, there is an image of a bottle of colorant with the caption "Colorants".

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species profile

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Abies koreana 'Silberlocke'. The recurved needles on this cultivar make it a silvery showstopper.



The list below provides a cross-section of the Korean cultivars that are in the nursery trade.

- **'Silberlocke'** Silberlocke is one of a series of Korean fir cultivars that feature recurved, or upturned, needles. The recurved needles display the silvery bands of stomata on the underside of the needles. The result is a striking silver appearance that gives the cultivar its name since Silber is German for silver.
- **'Blue cones'** As the name implies, the Korean fir cultivar was selected for its prolific blue cones.
- **'Compact dwarf'** This cultivar of Korean fir is characterized by its slow growth rate. The American Conifer Society denotes dwarf conifers as those that growth between 1" to 6" per year and typically reach about 1' to 6' in height by age 10. As with many ornamental conifers, 'Compact dwarf' lacks apical dominance and therefore appears more as a shrub than a tree.
- **'Aurea'** This is a yellow form of Korean fir. Christmas tree growers accustomed to striving for dark green color, might have to be physically restrained to keep from adding more fertilizer to this one.

Landscape cultivars: Although the number of Christmas tree growers in Michigan dabbling in Korean fir is increasing, the species is probably more widely known as a landscape ornamental. The American Conifer Society (ACS) recognizes roughly 40 cultivars of Korean fir. Some cultivars are obscure, but others are fairly well known and maybe worth considering for growers that are expanding into landscape nursery production.



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