The Japanese black pine (Pinus thunbergii L., Pinaceae) is prized in bonsai, topiary, and as an ornamental and garden plant. It is found in hardiness zones 5 to 10. It is a garden tree in Korea and Japan and also used as a bonsai because it can be trained and has many latent buds (Bitner, 2007; Dirr, 1990; Lee, 1999).

Today, ≈7.6 billion P. thunbergii bonsai are sold annually in Korea (Korea Forest Service, 2008). There are currently 13 cultivars: Compacta, Globosa, Iseli, Majestic Beauty, Mini Mounds, Mt. Hood Prostrate, Oculus-draconis, Pygmaea, Thunderhead, Beauty, Mini Mounds, Mt. Hood Prostrate, and Wailuku. The color of the leaves is yellow. Different types of striped leaves emerge from the shoot, including leaves with two bright yellow bands, and nonstriped needles. At the brush stage, the tips of weak leaves wither and are lost in the fall, but strong leaves are retained on the shoot. ‘Ansu Hobansong’ is basically in the yellow group (RHS 11 A–B), but its leaves in the shade or weak light are white and turn from ochre to bright ochre in fall. Secondary shoots are lighter ochre than primary shoots but have the same characteristics as primary shoots. Short-needled leaves are less likely to wilt and keep their color in the shade.

**Culture.** ‘Ansu Hwanggeumsong’, ‘Ansu Migeumsong’, and ‘Ansu Hobansong’ grow well in sunlight and well-drained soil with loamy sand. The color of ‘Ansu Hwanggeumsong’ is better in sunlight, whereas shaded trees growing close together have less vibrant color. In April, a 9-cm side veneer graft is tied to stock for vegetative propagation (Tooood, 1999). Secondary shoots cut in May have a more beautiful yellow color in leaves than primary shoots; and are used for grafted plants; single trees are best planted by themselves in bright sunlight and then pruned. If trees grow strongly in bright sunlight, needles can burn from the outside to inside, so young trees should be grown in shade. This tree is suitable for minimizing, bonsai, and pot cultures in doors. One of the best characteristics of ‘Ansu Hwanggeumsong’ is the spotted yellow color in primary shoots from May to July, which cannot be retained through topiary pruning.

‘Ansu Hobansong’ also changes in shade. Short-needled leaves can be obtained from shoots cut in June and July, which retain various yellow colors and stripes. Grafts with more than 50% yellow stripes lead to a deep golden color. Young shoots from May to July fall into the yellow-orange group and then change to green from the inside to the outside in August. Yellow–green group leaves are only new leaves, the color being greener than P. thunbergii later in the year, and from August to the end of April of the next year are more bluish green than P. thunbergii. These plants must be cultured in shade to prevent the leaves from burning.

**‘Ansu Hwanggeumsong’, ‘Ansu Migeumsong’, and ‘Ansu Hobansong’**

**Black Pine Cultivars**

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**Additional index words.** ornamental plant, topiary, bonsai, plant introduction, conifer, gymnosperm, Pinus

In 1995, a 3-year-old ‘Ansu Hwanggeum-song’ (AP 929501; PI 30490) sapling with yellow leaves and shoots was selected from a 47-year-old stock P. thunbergii. In 1996 and grafted these to 4-year-old stock P. thunbergii. From 1996 to 1998, 500 individuals were grafted and planted in field trials at Ansu Pine Plantation nursery. Currently, there are 500 14-year-old ‘Ansu Migeumsong’ plants, 10 11- to 13-year-old plants, and 500 younger individuals with the same uniform and stable characteristics as the parent tree. An application for the protection of a variety has been filed (No. 2009-17). ‘Ansu Hwanggeumsong’ was selected in 1995 from 18-year-old P. thunbergii plants for their yellow-colored lateral branches (height 12 m, DBH 20 cm), also from Jeon Nam Province. We selected 30 scions and grafted these to 30 4-year-old stock P. thunbergii plants. Between 1996 and 1998, an additional 1000 individuals were grafted and planted in field trials at Ansu Pine Plantation nursery. By 2009, we had 1000 ‘Ansu Hobansong’ plants that retain the parental characteristics even after 12 to 14 years of cultivation. An application for the protection of a variety has been filed (No. 2009-19).

**Description**

**Main characteristics.** All three cultivars originated as seedlings grown at Young Gwang-Gun from parent stock P. thunbergii. ‘Ansu Hwanggeumsong’ (AP 929501; PI 30490) is a 14-year-old narrow-leaved evergreen tree that is 5.5 m high with a DBH of 20 cm and a crown width of 6 m (Fig. 1). Mature leaves are 16.2 cm long and 1.44 mm wide and are smaller than normal leaves of P. thunbergii (leaves 17.3 cm long and 1.4 mm wide). New leaves appear in May and June and are in the yellow-orange group (RHS 144 C–D; RHS Horticultural Society, 2007). The leaf edge turns yellow by the end of August, and whole leaves rapidly turn yellow after frost. From October to April, the trees remain in the yellow hroup, similar to P. thunbergii. A strong characteristic of ‘Ansu Hwanggeumsong’ is much clearer yellow leaves and, by mid-May, yellow primary shoots. ‘Ansu Migeumsong’ (AP 929502; PI 560450) is a 14-year-old narrow-leaved evergreen tree that is 8 m high with a DBH of 14 cm and a crown width of 3 m (Fig. 1). Mature leaves are 12.1 cm long and 1 mm wide. New leaves are almost ivory white, appear in May to June, and are in the yellow-green group (RHS 150 A–B), later becoming a deep golden color. Young shoots from May to July fall into the yellow-orange group and then change to green from the inside to the outside in August. Yellow–green group leaves are only new leaves, the color being greener than P. thunbergii later in the year, and from August to the end of April of the next year are more bluish green than P. thunbergii. These plants must be cultured in shade to prevent the leaves from burning.

‘Ansu Hwanggeumsong’ (AP 929503; PI 640570) is a 14-year-old, narrow-leaved evergreen tree that is 3.2 m high with a DBH of 8 cm and a crown width of 3.5 m (Fig. 1). Mature leaves are 14.1 cm long and 1 mm wide. The leaf is white or yellow with vertical stripes, unlike ‘Oculus-draconis’, which is P. thunbergii and has horizontal stripes (Dirr, 1990). In shade, leaves contain more white color, but in sunlight, they have a strong yellow color; winter buds are yellow. Different types of striped leaves emerge from the shoot, including leaves with two bright yellow bands, and nonstriped needles. At the brush stage, the tips of weak leaves wither and are lost in the fall, but strong leaves are retained on the shoot. ‘Ansu Hobansong’ is basically in the yellow group (RHS 11 A–B), but its leaves in the shade or weak light are white and turn from ochre to bright ochre in fall. Secondary shoots are lighter ochre than primary shoots but have the same characteristics as primary shoots. Short-needled leaves are less likely to wither and keep their color in the shade.

‘Ansu Hwanggeumsong’, ‘Ansu Migeumsong’, and ‘Ansu Hobansong’ grow well in sunlight and well-drained soil with loamy sand. The color of ‘Ansu Hwanggeumsong’ is better in sunlight, whereas shaded trees growing close together have less vibrant color. In April, 9-cm side veneer graft is tied to stock for vegetative propagation (Tooood, 1999). Secondary shoots cut in May have a more beautiful yellow color in leaves than primary shoots; and are used for grafted plants; single trees are best planted by themselves in bright sunlight and then pruned. If trees grow strongly in bright sunlight, needles can burn from the outside to inside, so young trees should be grown in shade. This tree is suitable for minimizing, bonsai, and pot culture indoors. One of the best characteristics of ‘Ansu Migeumsong’ is the spotted yellow color in primary shoots from May to July, which can be retained through topiary pruning.

The color of ‘Ansu Hobansong’ also changes in shade. Short-needled leaves can be obtained from shoots cut in June and July, which retain various yellow colors and stripes. Grafts with more than 50% yellow stripes lead to a deep golden color. Young shoots from May to July fall into the yellow-orange group and then change to green from the inside to the outside in August. Yellow–green group leaves are only new leaves, the color being greener than P. thunbergii later in the year, and from August to the end of April of the next year are more bluish green than P. thunbergii. These plants must be cultured in shade to prevent the leaves from burning.
to too many yellow leaves that weaken the tree. The golden color of ‘Ansu Hobansong’ can be retained through a balance between green and variegated branches through pruning.

**Availability**

Like other woody ornamentals in the Ansu Pine Plantation, ‘Ansu-Hwanggeumsong’, ‘Ansu-Migeumsong’, and ‘Ansu-Hobansong’ are entitled to protection as varieties and cannot be propagated and sold freely, but these plants are available for wholesale, by mail order, and from a few retail nurseries. The Ansu Pine Plantation has stocks of these cultivars available for general distribution.

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