Winter's Rose', 'Snow Flurry', and 'Polar Ice' Camellias

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Camellias are successfully grown outdoors in the United States along the East Coast from Virginia to Florida, westward through the Gulf Coast states to Texas, and along the West Coast from southern California to coastal Oregon and Washington. This region, described roughly as the "Camellia Belt," is responsible for most of the camellias grown in the United States. Beyond this region there are scattered plantings, usually under protected microclimatic conditions, subject to severe winter kill during colder than normal winters.

Camellia sasanqua Thunb. ex J.A. Murray and *C. hiemalis* Nakai, two fall-flowering species grown by southern gardeners for many years, produce showy late-autumn floral displays ranging from white through pink, magenta, and red. However, these plants are too susceptible to winter injury to be grown much further north than Zone 8a (U.S. Dept. of Agriculture, 1990) without risk of damage.

Beginning with the 1976-77 season, a series of unusually cold winters extending through the mid-1980s, made us seriously question the reliability of most *C. sasanqua* or *C. hiemalis* cultivars as long-term landscape plants (Ackerman, 1978) in the Washington, D.C., area (Zone 7a). All but a few of the more than 120 specimens of 68 *C. sasanqua* cultivars grown in the U.S. National Arboretum's collection were either killed or so badly damaged that they had to be removed.

However, plants of *C. oleifera* Abel at the arboretum and north into Maryland and southeastern Pennsylvania showed no winter injury during this period despite temperatures as low as -26°C. These observations led us to use proven hardy strains of *C. oleifera* in interspecific crosses with selected *C. sasanqua* and *C. hiemalis* cultivars. Although the flowers of *C. oleifera* are relatively small, this species, native throughout a wide range of the People's Republic of

China, including regions climatically comparable to coastal New England, became the foundation of our cold-hardy breeding program.

Origin

'Winter's Rose' originated from an F₁ interspecific cross, while 'Snow Flurry' and 'Polar Ice' resulted from backcrosses to the *C. oleifera* parent, conducted at the U.S. Plant Introduction Station, Glenn Dale, Md. These three cultivars combine the plant cold hardiness of *C. oleifera* with the flower form and quality of *C. hiemalis*. They are considered an improvement over the two previous F₁ hybrids 'Frost Prince' and 'Frost Princess' (Ackerman, 1981) in that they have shown greater cold tolerance.

Description

'Winter's Rose' (PI 546368, NA 61952), *C. oleifera* PI 162561 x *C. hiemalis* 'Otome', survived winter conditions (1983-91) outdoors at Ashton, Md., and showed no damage despite temperatures as low as -23°C during 7 years of exposure without protec-

tion other than a canopy provided by large *Pinus virginiana* trees. The plant is slow growing (120 cm tall at 9 years), moderately spreading with branchlets somewhat drooping. Leaves are leathery, semiglossy, very dark green, elliptic, 7 cm long, 2.5 cm wide with crenate margins. Internodes are short, giving a dense effect. The flowers are 5 cm, shell pink (Red 56 B-D) (Royal Horticultural Society, 1982), formal double, 28 petals (Fig. 1). The plant blooms from October to November, frequently over 6 weeks in eastern Maryland. At senescence, flower petals fall separately (not as a unit as do *C. japonica* L. cultivars), making the cleanup of spent flowers unnecessary.

'Snow Flurry' (PI 546367, NA 61951), *C. oleifera* PI 162561 x 'Frost Princess' PI 483432 (*C. hiemalis* 'Bill Wylam' x *C. oleifera* PI 162561), survived winter conditions (1981-91) outdoors at Glenn Dale, Md., and showed no damage despite temperatures as low as -24°C during 9 years of exposure without protection other than an open frame structure covered with 40% black plastic shade cloth. Plant is moderately vigorous (185 cm tall at 11 years); growth is spreading with branchlets somewhat drooping. Leaves are leathery, semiglossy, medium green, ovate, 8 cm long, 3 cm wide with serrate margins. The flowers are 7 cm, white, peony form, 12 petals, 18 petaloids (Fig. 2). The plant blooms from October to November, frequently up to 7 weeks in eastern Maryland. At senescence, flower petals fall separately.

'Polar Ice' (PI 546366, NA 61950), 'Frost Princess' PI 483432 (*C. hiemalis* 'Bill Wylam' x *C. oleifera* PI 162561) x *C. oleifera* PI 162561, was exposed to the same environmental conditions at Ashton, Md., for the same period as 'Winter's Rose'. The plant has moderately vigorous growth (165 cm tall at 10 years) and is more upright than either of the other two cultivars described here. Leaves are leathery, midrib and veins indented, glossy, dark green, obovate, 10 cm

Fig. 1. 'Winter's Rose' (*C. oleifera* x *C. hiemalis* 'Otome').

Fig. 2. 'Snow Flurry' [*C. oleifera* x 'Frost Princess' (*C. hiemalis* x *C. oleifera*)].

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Fig. 3. 'Polar Ice' ['Frost Princess' (*C. hiemalis* x *C. oleifera*) x *C. oleifera*].

long, 4.5 cm wide with crenate to moderately serrate margins. Flowers are 9 cm, white, anemone form, 12 petals, 89 petal-

loids. The plant blooms from October to November, frequently up to 5 weeks in eastern Maryland. At senescence, flower petals fall separately.

All three cultivars thus far have been free of diseases and insects. The most serious camellia diseases are flower petal blight, die-back, and root rot. flower blight rarely infects fall-blooming camellias and die-back is not generally seen in northern areas where these cultivars are recommended. Baxter and Segars (1988) found *C. oleifera* to be resistant to *Phytophthora* root rot, but susceptible to *Cylindrocladium crotalariae*, a different root rot pathogen. The most serious camellia insects are the scale insects, particularly peony scale (*Pseudaonidia paeoniae*). No assurances can be given at this time that these hybrid cultivars are more resistant to scale than other camellias.

Availability

The plants produced under stock increase

agreement with cooperating nurseries will be the source material for introduction in 1992. There will be limited quantities of plants and scions available. Plant breeders and nurseries may obtain information by writing to the Plant Distribution Dept., U.S. National Arboretum, 3501 New York Ave. NE, Washington, DC 20002.

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