Syringa pekinensis ‘SunDak’ (Copper Curls[®]): A Widely Adapted Tree Lilac

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Pekin lilac (*Syringa pekinensis* Rupr.), a tree lilac native to northern China, has many desirable horticultural traits but is underused as a landscape plant (Dirr, 1998). A combination of pest resistance and superior ornamental characteristics makes it desirable for reduced maintenance landscapes. Pekin lilac differs from the closely related Japanese tree lilac [*S. reticulata* (Bl.) Hara] primarily by its finer texture and variable colorful bark, which exfoliates horizontally in thin flakes or sheets. In North Dakota trials, both species usually flower at the same time, but the blooming date may vary slightly among seedlings, cultivars, and sites. Pekin lilac flowers in May in central North Carolina and in June in eastern North Dakota. The later flowering date for tree lilac species extends the season of bloom for lilacs. Within populations of *S. pekinensis* grown from seed, there is considerable genetic diversity in leaf size and winter hardiness of individuals. Several cultivar selections have been introduced to the nursery trade, including Beijing Gold[®] (‘Zhang Zhimjing’), China Snow[®] (‘Morton’), ‘Pendula’, and Summer Charm[®] (‘DTR 124’) (Dirr, 1998). Although shrubby lilacs are often selected on the basis of color, quality, and fragrance of the flowers, ‘SunDak’ is a new tree lilac cultivar selected primarily for its attractive exfoliating orange to coppery pigmented bark on the trunk and lateral branches, which provides landscape interest throughout the year. This environmentally durable cultivar fulfills consumer preferences for a low-maintenance small landscape tree with pest resistance (Tripp and Raulston, 1995).

Origin

This Pekin lilac was selected from a population of seedlings grown from open-pollinated seed collected in 1975 from a 50- to 60-year-old tree growing on the campus of North Dakota State University (NDSU), Fargo. One seedling was planted on the NDSU campus in 1983. It was propagated and evaluated since

1996 as NDSU trial selection 9696 in several locations in North Dakota and one location in North Carolina. The tree’s growth habit and performance were observed continuously over the past 22 years. The color of various plant parts was determined under natural light using the reprint of the Royal Horticultural Society (RHS) color chart (Royal Horticultural Society, 1966). Hardiness zones cited follow the U.S. Department of Agriculture’s plant hardiness zone map (USDA, 1990).

Description

‘SunDak’ is a small tree growing 5.6 to 8.6 m tall and 4.6 to 7.7 m wide with an upright, broadly oval to rounded growth habit (Fig. 1). Under sod conditions, it averaged 35 cm of growth per year over a 20-year period. It can be grown as a single- or multiple-trunked small tree. The exceptional feature of ‘SunDak’ is its distinctly ornamental orange to coppery colored bark (RHS grayed orange group 164A to 165B), which develops as stems increase in size starting when the diameter is scarcely 1.5 to 3.0 cm. The bark exhibits numerous horizontal, beige, corky lenticels (3 to 8 mm long) and exfoliates in thin curling sheets resulting in showy trunks and branches, which contrast with snow and evergreens in the winter landscape of the central United States. Average length of exfoliating bark sheets is 3.6 cm. Phyllotaxy is opposite and leaves are ovate to ovate-lanceolate, acuminate-tipped and cuneate at base, 4.0 to 7.6 cm long and 2.4–7.3 cm wide, and dark green (RHS green group 137A/B above, and yellow–green group 147B beneath). Leaves are entire, scarcely veined, and glabrous. Petioles are 0.8 to 3 cm long. Purplish-pigmented new growth changes to green as leaves expand to full size. Flowers are produced in 10.2 to 23.4-cm long, variably pyramidal-shaped panicles with scattered panicles nearly globose. The tubular, 4-lobed florets are 4.0 to 5.0 mm long and 5.0 to 7.0 mm wide. Flower color is creamy white (RHS white 155D). The filaments average 4.5 mm in length and 0.5 mm in width. Anthers average 2.2 mm long and 1.3 mm wide and darken sequentially from day 1 to day 4 of flowering from RHS yellow–white group 158C to grayed yellow 160B to grayed orange 164 A/B, respectively. Length of bloom period varies from 15 to 20 d, depending on temperatures.

Flowers are quite fragrant, similar to the scent of *Ligustrum* (privet). The fruits (capsules) are borne in large clusters similar to the flowers. The two-celled capsules are 1.4 to 2.0 cm long and ripen to RHS grayed orange group 164 B/C to 165 B/C. Each capsule contains four winged, flat seeds averaging 1.5 cm long and 0.6 cm wide. Seed clusters remain on the tree adding winter landscape interest, particularly when trees are covered with hoarfrost on winter days. Fall leaf color is usually minimal in the Northern Plains, but pale yellow hues developed, particularly in the North Carolina trial.

Culture

‘SunDak’ can be clonally propagated by piece root grafting on seedlings of the species or on several other taxa within the olive family (Oleaceae), including green ash (*Fraxinus pennsylvanica* Marsh.) seedlings or cutting-propagated Chinese privet (*Ligustrum sinense* Lour.). Although epicormic sprouting (suckering) has not been observed, deep planting of grafts encourages the development of “own-root” plants (Hartman et al., 2002). Bark grafting onto 2-year-old *S. pekinensis* seedlings using scions of one node length was successful and is an efficient use of scionwood. This species can undoubtedly be propagated by softwood cuttings collected in June using 8000 to 10,000 ppm IBA quick dip as reported for *S. reticulata* (Dirr and Heuser, 1987). Several cultivars are also being propagated by tissue culture firms. ‘SunDak’ is fibrous rooted and can be readily transplanted as a bareroot, balled and burlapped, or containerized plant.

Resistance to Pests and Stress

Evaluations indicate that ‘SunDak’ has resistance to ash/lilac borer [*Podosesia syringae* (Harris)] and powdery mildew [*Microsphaera penicillata* (Wallr.: Fr.) Lév.]. It is not susceptible to foliar feeding insects. It is tolerant to drought, heat, and low winter temperatures. It has been evaluated for 6 years in an acid clay soil of the Piedmont Region of North Carolina. Like most lilacs, it will respond best to well-drained planting sites with a soil pH between 6 and 7. ‘SunDak’ is well adapted to USDA Plant Hardiness zones 3b to 7b (USDA, 1990). This results in a recommendation for planting in the Northern Plains and much of the eastern United States. Evaluations at NDSU have shown that ‘SunDak’ has superior winterhardiness to several other seed sources and named cultivars of this species.

Outstanding Characteristics and Use

This clone has been evaluated at Absaraka and Fargo, N.D., as well as Cary, N.C. Specimens can be grown in a multiple stem form or as a single stem tree. In northern locations, it could be considered as an alternative to Amur chokecherry (*Prunus maackii* Rupr.), a species that also has attractive slightly exfoliating copper-colored

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Fig. 1. (A) Twenty-five-year old 'SunDak'—Copper Curls® Pekin lilac in spring bloom. (B) Large creamy white flower panicles. (C) Quality green foliage. (D) Showy coppery orange exfoliating bark. (E) Interesting fruit capsules.

bark but tends to be short-lived, particularly when planted in clay soils. *S. pekinensis* 'SunDak' is nonsuckering and it is not invasive or messy. Its medium stature as a small tree makes it an appropriate choice for planting under utility lines. Flowers are perfect, produced in creamy white panicles, which are fragrant and require a different *S. pekinensis* genotype for pollination to occur. In North Dakota, budbreak coincides with the completion of *Forsythia* × 'Meadowlark' flowering, and in central North Carolina, budbreak occurs in spring just after the peak bloom of *Salix caprea* L. and coincides with the beginning of flowering of *Forsythia* × *intermedia* Zab. Coppery coloration and

exfoliating bark begins when stems reach 1.5 to 3 cm in diameter; this bark color is retained until the branches or trunks are at least 15 cm in diameter. With age, the trunk darkens and becomes more roughened, but plants may respond to rejuvenation pruning using "heading back" and "thinning" cuts (Janick, 2001). Pruning methods that promote rapid shoot growth for a straight single trunk (Davidson et al., 2000) or "stem-building" techniques are recommended for this clone if grown as a tree. In such cases, tree form will be more narrow and upright.

The angle of primary branches on a vigorously growing small tree averaged 54%. Average angle of 13 branch pairs on a 20-

year-old tree was 33%. 'SunDak' is best grown in landscapes as a small multistemmed specimen because the bark color is maintained for a longer period of time and flowers are produced lower to the ground for ease of viewing.

Availability

This cultivar is available for nonexclusive licensing. For more information, contact Dale Zetocha, Executive Director, NDSU Research Foundation, 1735 NDSU Research Park Drive, Fargo, ND 58105-5012; phone: (701) 231-8931; e-mail: dale.zetocha@ndsu.edu. 'SunDak' was granted PP#16,570 on 23 May 2006 and trademark registration of #3,105,783 for the name Copper Curls® on 20 June 2006. The cultivar was released in 2000. Plant material for vegetative propagation can be obtained from NDSU Department of Plant Sciences or designated nursery subject to availability. There is a horticultural royalty of \$0.85 per plant through the NDSU Research Foundation. Trees are available from Bailey Nurseries, Inc., 1325 Bailey Road, St. Paul, MN 55119. Several other nurseries have been licensed and are beginning production.

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