'John Pair' and 'Autumn Splendor' Sugar Maples

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Sugar maple, *Acer saccharum* Marshall (Aceraceae Juss.), is an attractive, highly desirable landscape tree, best known for its outstanding fall color. Unfortunately, it is not well adapted to the climate of the Southern Plains, particularly severe fluctuations in wind, rainfall, and temperature. The native range of *A. saccharum* extends from New England westward to Iowa, Missouri, Arkansas, and into eastern Texas and Oklahoma. In addition, two disjunct populations occur in western Oklahoma, one in the Wichita Mountains near Chicasha and another in Caddo and Comanche Counties (Dent and Adams, 1983). A 10-year evaluation at the John C. Pair Horticulture Research Center, Wichita, Kans., indicated superior performance of maples from the Caddo County population relative to other sugar maple cultivars. Subsequent evaluation among the Caddo seedling plants identified two superior selections worthy of release as cultivars.

Origin

In 1983, a sugar maple trial was established at the John C. Pair Horticulture Research Center to compare *A. saccharum* cultivars for ornamental value and tolerance to the extreme weather fluctuations of Kansas. Represented in the trial were sugar maple cultivars in the trade selected by nurseries in New Jersey ('Bonfire'), Illinois ('Legacy' and 'Commemoration'), and Iowa ('Green Column'), plus seedling maples grown from a Caddo County, Okla., seed collection. In addition, 'Legacy' and five Caddo maple seedlings were planted at six test sites in Colby, Garden City, Hays, Manhattan, Tribune, and Wichita, Kans. (Hensley et al., 1991). Ten years of observations on growth, resistance to tatter (the interlobal tearing of leaves that results from a combination of factors), and drought tolerance indicated superior performance of Caddo maples compared with the sugar maple cultivars in the trade. Table 1 shows some of the

results from the first 6 years. One noticeable difference, probably related to the Caddo population being a southern ecotype, was a tendency toward late development of fall color, often as late as 1 Nov. Therefore, a second search was begun to select Caddo maples with earlier fall color development, resulting in Dr. John Pair identifying two candidates for release as cultivars. In tribute to Pair's dedicated research and devotion to ensure the best landscape plants for Kansas and the southern Great Plains, his favorite Caddo maple selection has been named 'John Pair'. The other selection bears the name he assigned to it, 'Autumn Splendor'. Both names have been registered in accordance with the International Code of Nomenclature for Cultivated Plants (Brickell, 1995). Herbarium specimens are on deposit at the Kansas State Univ. Herbarium (KSC).

Description

'John Pair'. This cultivar (90-7185) has a noticeably superior, early fall, red to grayed-red color [46B-179A; Royal Horticultural Society (RHS), 1966]. It is slower growing than other Caddo maples (43.2 cm per year), but has a very formal, broad, oval, growth habit with a dense crown of broadly ascending branches. The 14-year-old parent tree (Fig. 1) has a trunk diameter of 10.2 cm (breast height), a height of 6 m, and a width of 3.5 m. Bark is slightly furrowed and branches are smooth, with a color between 197 C & D (RHS, 1966); 1-year winter twigs are grayed-orange (165B, 164A, 175AA; RHS, 1966), and summer twigs are grayed-orange (165B/A; RHS, 1966). Winter buds are conical and 5.0-7.0 mm long; scales are scarcely pubescent. Leaf blades are three- to five-lobed with narrow sinuses, 7-10 cm long, and 9-14 cm wide (terminal blades

smaller); petioles are 2.5-11.0 cm long (terminal petioles shorter). Leaves are glabrous except for scattered trichomes in the axils of the main veins beneath, and the base is truncate. Leaf color in summer is green (137A; RHS, 1966) on the upper surface and lighter green (138B-139C; RHS, 1966) on the underside. This plant can be distinguished from similar clones by the sparsity of trichomes in the axils of the leaf veins, the size and pubescence of the winter buds, the fall color of the leaves, the winter twig color, and the persistence of leaves through late winter.

'Autumn Splendor'. This cultivar (83-NR3) has the earliest fall color, yellow-orange to red (22A-42B; RHS, 1966). It has an upright oval growth habit with ascending branches and is more columnar than 'John Pair'. The growth is vigorous, 50.8 cm per year. The 14-year-old parent tree (Fig. 2) has a trunk diameter of 11.4 cm (breast height), a height of 7.0 m, and a width of 3.3 m. Bark is slightly furrowed, branches are smooth, with a color between 198 B & C (RHS, 1966); 1-year winter twigs are grayed-orange (175 C & A; RHS, 1966), and summer twigs are grayed-orange (165A; RHS, 1966). Winter buds are conical and 4.0-5.5 mm long; scales are pubescent. Leaf blades are three- to five-lobed, with narrow sinuses, 7.0-11.5 cm long, and 10.0-15.5 cm wide (terminal blades smaller); petioles are 3.0-11.0 cm long (terminal petioles shorter). Leaves are glabrous except for scattered trichomes in the axils of the main veins beneath, and the base is truncate. Leaf color in summer is green (137A, 139A; RHS, 1966) on the upper surface and lighter green (137C; RHS, 1966) on the under surface. This tree can be distinguished from similar clones on the basis of the sparsity of trichomes in the axils of the leaf veins, the size and pubescence of the winter buds, the fall color of the leaves, and the winter twig color.

Culture and Uses

'John Pair' and 'Autumn Splendor' have excellent drought tolerance and resistance to leaf tatter. The dense oval growth habit and outstanding early fall color make them suitable for use as specimen or shade tree for residential, park, or street plantings. Development of fall color normally begins in early to mid-October and peaks around the third week in October. This is comparable to many sugar maple cultivars but earlier than most other Caddo maples, which begin in mid- to late

Table 1. Performance of Caddo (C) and 'Legacy' (L) sugar maples at six locations^a in Kansas 1986-90. Data taken annually at the end of each growing season.

Location	% Survival		Plant height (m)		Caliper (cm)		Foliage quality ^b	
	C	L	C	L	C	L	C	L
Manhattan	80	60	4.5	3.1	7.5	4.7	4.1	4.0
Wichita	100	60	3.7	2.2	4.3	3.2	4.8	4.5
Hays	100	80	2.5	1.5	3.2	2.1	3.6	3.0
Colby	60	20	3.6	1.7	4.7	2.2	3.0	3.3
Tribune	100	20	2.7	2.0	4.1	2.9	3.8	3.0
Garden City	100	20	2.5	2.0	3.5	2.8	3.4	4.0
Mean	90	43	3.3	2.1	4.6	3.0	3.8	3.6

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^aFive plants of each taxon were planted at each location.

^bBased on scale of 1-5 with 1 = poorest and 5 = excellent, rated visually; expressed as percentage of leaf area affected by leaf scorch/tatter.

Fig. 1. The 14-year-old original tree of 'John Pair' sugar maple planted on the grounds of the John C. Pair Horticulture Research Center, Wichita, Kans.

Fig. 2. The original tree of 'Autumn Splendor', 12 years old, in the test planting at the John C. Pair Horticulture Research Center, Wichita, Kans.

October and reach peak coloring as late as the first week in November. 'Autumn Splendor', which showed winter injury at -38°C , appears to be slightly hardier than 'John Pair' (Pair and Le Duc, 1994). Both cultivars are more vigorous than other cultivars in the trade.

Propagation of both cultivars is by T-budding. Plants budded on Caddo seedling rootstock have performed best in Kansas (Pair, unpublished data), but commercial producers are using other sugar maple rootstocks. There is some indication that the performance of the cultivars in various regions of the United States is dependent on rootstock. At the time of his death, Dr. Pair was developing a study to determine the rootstock for optimum performance.

Availability

Both 'John Pair' and 'Autumn Splendor' have been propagated and distributed for testing to commercial nurseries in production areas of Oregon at Bailey Nurseries, Inc., J. Frank Schmidt & Son, and Spears Nursery. Further inquiries and requests for scion wood should be referred to Michael Shelton, John C. Pair Horticulture Research Center, Haysville, KS 67060-8351.

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