‘Miss Frances’, ‘Miss Gail’, and ‘Miss Sandra’ Crape myrtles

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Crape myrtles (*Lagerstroemia* L.) are endemic to Asia (southern China, southeast Asia, and Japan) where they have been cultivated for timber and as major flowering ornamental plants for ≥ 1500 years (Huxley, 1992; Pooler, 2006; Pounders et al., 2013; Wang et al., 2014). They were introduced to Europe in the mid-1600s and subsequently to the southeastern United States in late 1700s (Egolf and Andrick, 1978; Pooler, 2006). Crape myrtles, in particular *Lagerstroemia indica* L. and *L. indica* $\times$ *L. fauriei* Koehne hybrids, are currently popular flowering shrubs and small trees in U.S. landscapes in regions with hot summers in the U.S. Department of Agriculture (USDA) plant hardiness zones 6–10 (USDA Hardiness Zone Map, 2009, AHS Heat Zone Map, 2009). Reasons for their popularity include ease of production, long-lasting summer bloom, diverse flower colors, growth forms, and striking exfoliating bark on smooth multistemmed trunks (Pooler, 2006; Pounders et al., 2013).

Reported here are three new *Lagerstroemia* cultivars, Miss Gail, Miss Frances, and Miss Sandra, which were released by the United States Department of Agriculture, Agricultural Research Service (USDA-ARS) and registered in 2015 with the U.S. National Arboretum. ‘Miss Gail’ stands out because of its superior purple flower color, ‘Miss Frances’ because of its superior red flower color along with an attractive green foliage, and ‘Miss Sandra’ because of its elite purple flower color and tight vertical growth habit. All three cultivars were field grown and evaluated for 9 years and showed tolerance to common crape myrtle diseases such as bacterial spot, powdery mildew, *Cercospora* leaf spot, and “Rabbit Tracks” disorder.

Origin

‘Miss Gail’ resulted from a cross-pollination between ‘Catwba’ (Egolf, 1967) as the female parent and ‘Arapaho’ (Pooler, 2006) as the male parent. ‘Miss Gail’ was selected as a superior purple-flowered seedling (CM223) within the descendants of the stated cross-pollination. ‘Miss Frances’ resulted from a *Lagerstroemia* cross-pollination between

‘Gamad I’ (sold under the trademark Cherry Dazzle) as the female parent and ‘Arapaho’ as the male parent (Dirr, 2006; Pooler, 2006). The new crape myrtle was selected as a superior red-flowered seedling (CM224) with attractive green foliage within the progeny of the stated hybridization. ‘Miss Sandra’ resulted from a pollination between an unregistered purple-flowered seedling collected in San Antonio, TX, as the female parent and ‘Tonto’ as the male parent (Egolf, 1990). ‘Miss Sandra’ was selected as an elite purple-flowered seedling (CM78) within the offspring of the stated cross-pollination. The three new crape myrtles were selected at the Thad Cochran Southern Horticultural Laboratory in Poplarville, MS, a climate characterized as USDA Hardiness Zone 8B (USDA, 2015) and AHS heat Zone 9 (American Horticulture Society, 2015). Seedlings were screened under ambient field conditions in containers supplied with overhead irrigation. Plants were exposed to intermittent stress conditions caused by full sun, cool spring nights, high humidity, and summer drought, which are generally considered to be conducive to development of the common crape myrtle diseases: bacterial spot (*Xanthomonas axonopodis*), powdery mildew (*Erysiphe australis*), *Cercospora* leaf spot (*Pseudocercospora lythracearum*), and “Rabbit Tracks” disorder. Other seedlings screened under the conditions with the three selections contracted the diseases. The cultivar named ‘Miss Frances’, ‘Miss Gail’, and ‘Miss Sandra’ were registered in 2015 with the U.S. National Arboretum, which is the International Registration Authority for *Lagerstroemia*, in accordance with the *International Code of Nomenclature for Cultivated Plants-2009* (Brickell et al., 2009).

Description

The three cultivars display concentrated crown branching with exceptional foliage coverage and retention. Pinnately veined elliptical leaves have entire margins with acuminate apices and cuneate bases. Inflorescences generally have ≥ 50 flowers per panicle. Fan-shaped flower petals have ruffled apices, ruffled margins, and sagittate bases. The three clones start flowering in late June in south Mississippi. Plants develop rapidly and tolerate fluctuations in environmental conditions such as changes in water availability, temperature fluctuations, and/or

fertility. Cultural variations can induce slight phenotypic changes with no alteration of genotype. The descriptions reported here are from a representative 9-year-old field-grown plant for each cultivar. Multiple propagation cycles have demonstrated retention of major distinguishing traits in the asexually derived offspring.

Plants of ‘Miss Gail’ have an upright, tight, vase shaped growth habit with approximate dimensions of 6.5-m high and 3-m wide at 9 years of age under ambient field conditions in south Mississippi (Fig. 1A). Mature trunk bark is Greyed Orange 165C (Royal Horticultural Society and Flower Council of Holland, 2001) with new shoots initially Red Purple 61A maturing to Grey Brown 199A. Plants develop thick crown branching with good foliage cover of large dark green leaves. Leaves measure up to 8.5 cm in length and 5 cm in width and are Green 138B on upper surfaces and Yellow Green 146A on undersides. Foliage retention is excellent from spring through fall. Inflorescences average 14 cm in length and 8 cm in width on the terminal ends of branches. Flowers have six petals, with individual flowers measuring 4 cm in width. Flowers are generally colored Purple Violet N80A (Fig. 1D). Yellow 4A stamens contrast nicely with the purple petal color. Flowering occurs from late June into August. ‘Miss Gail’ displayed a high level of field resistance to *Cercospora* leaf spot, powdery mildew, and “Rabbit Tracks” and moderate resistance to bacterial spot. In addition to disease resistance, the clone has a combination of other desirable horticultural traits including a large growth habit (7 m), dark purple flowers over an extended bloom season, and attractive persistent green foliage.

Plants of ‘Miss Frances’ have a round spreading growth habit with approximate dimensions of 5.5-m tall and 6-m wide after 9 years growing under ambient field conditions in south Mississippi (Fig. 1B). Bark on mature trunk branches is Greyed Orange 166D with young shoots initially Greyed Red 178A maturing to Greyed Purple N186B. Crown branching is vigorous and dense with good foliage cover. Leaves measure ≈ 6 cm in length and 3.5 cm in width. Leaves are Green 139A on the upper surface with Green 139C undersides. Good leaf retention has been observed from spring through fall. Flower panicles average 16 cm in length and 8 cm in width on the terminal ends of branches. Flower buds are Red 46A, rounded, 9 mm in diameter, and 8 mm in length. Flowers have six petals, with individuals measuring 4 cm in width. Flowers are generally Red 46A (Fig. 1E). Plants flower from late June into August in south Mississippi. ‘Miss Frances’ displayed a high level of field resistance to “Rabbit Tracks,” bacterial leaf spot, and powdery mildew with moderate resistance to *Cercospora* leaf spot. Disease resistance is combined with other desirable horticultural traits including a large growth habit (5 to 7 m), dark red flowers over an extended bloom season, and attractive persistent

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Fig. 1. Growth habits of 9-year-old field-grown plants are shown for (A) 'Miss Gail', (B) 'Miss Frances', and (C) 'Miss Sandra' crape myrtles. Foliage is similar among all three crape myrtle cultivars, but growth habit for the two purple clones (A and C) is different from that of 'Miss Gail' (A). Flowers of (D) 'Miss Gail', (E) 'Miss Frances', and (F) 'Miss Sandra'.

green foliage. Plants are more vigorous than many dark red-flowered cultivars such as its Arapaho and Gamad I parents.

Plants of 'Miss Sandra' have an upright spreading growth habit with approximate dimensions of 6 m high and 3 m wide at 9 years of age in south Mississippi under ambient field conditions (Fig. 1C). Flowering occurs from late June into August. Plants develop thick crown branching with good foliage cover. Leaves are ≈ 5 cm in length and 3 cm in width. Leaves are Green 137A on upper surfaces and Yellow green N144A on undersides. Foliage retention is excellent throughout the summer. Inflorescences average 14 cm in length and 7 cm in width on the terminal ends of branches. Flower buds are rounded (6 mm in diameter and 7 mm in length), Purple-Violet N81A at ribs with Violet 84A surfaces (Fig. 1F). Flowers measure 4 cm in width. Petals are fan shaped with ruffled apex and ruffled margins. 'Miss Sandra' displayed a high level of field resistance to bacterial spot, powdery mildew, *Cercospora* leaf spot, and "Rabbit Tracks" combined with other desirable horticultural traits including a large growth habit (6 to 8 m), dark purple flowers over an extended bloom season, and attractive persistent green foliage.

Culture

Plants of 'Miss Frances', 'Miss Gail', and 'Miss Sandra' thrive in diverse soil and climatic conditions typical of the southern U.S. Crape myrtles grow and flower best in full sun with adequate moisture, balanced fertility,

and a well-drained substrate with a pH of 5.0 to 6.5. The clones generally should be top hardy in USDA Hardiness Zone 7 (USDA, 2015) and root hardy to Zone 6 if properly hardened for winter conditions. Commercial production practices conform to those generally used in the nursery industry for *L. indica* cultivars. Plants are amenable to pruning and can be maintained readily as smaller shrubs by annual heavy dormant pruning or allowed to mature to their natural growth habit.

The three cultivars are easily propagated by softwood stem cuttings treated with 2000 ppm indolebutyric acid under intermittent misting systems or as hardwood cutting in the winter. Cuttings should be taken from actively growing stock plants for best rooting.

Availability

Additional information on 'Miss Frances', 'Miss Gail', and 'Miss Sandra' crape myrtles and a list of nurseries propagating them are available upon written request to Cecil Pounders, USDA-ARS (cecil.pounders@ars.usda.gov). The USDA-ARS does not have plants for sale. Specimens of the three cultivars have been deposited in the National Plant Germplasm System as 'Miss Gail' (PI 674098), 'Miss Frances' (PI 674099), and 'Miss Sandra' (PI 674100) to make them available for research purposes. It is requested that appropriate recognition be made if this germplasm contributes to the development of new breeding lines or cultivars.

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