‘UCONNPC001’ (Darkstar®) Purpleleaf Sandcherry

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The purpleleaf sandcherry, *Prunus ×cistena*, was first released in 1910 by N.E. Hansen at the South Dakota Agricultural Research Station (Jacobson, 1992). This hybrid was the result of a cross between *Prunus pumila* var. *besseyi* (syn. *Prunus besseyi*), a cold hardy shrub of North America, and *Prunus cerasifera* var. *atropurpurea* (cherry plum or myrobalan plum), a native of western Asia and the Caucasus (Dirr, 2009; Jacobson, 1992). *P. pumila* var. *besseyi* is variable, with a plant height ranging from 60 cm for *P. pumila* var. *besseyi* ‘P011S’ Pawnee Buttes® to 150 cm for ‘Hansens’ (aka ‘Hansen’s Bush Cherry’). Judging from the height of *P. ×cistena*, it is likely that one of the taller forms of var. *besseyi* was used as a parent in Hansen’s cross that first created *P. ×cistena*. Most of the *P. ×cistena* in the horticultural trade is probably the original clone introduced by Hansen in 1910, although cultivars exist, such as Big Cis and Minnesota Red.

Prunus ×cistena reaches 2 to 3 m tall, produces single pink flowers in April to May, and has bright-red foliage that emerges in the spring and stays fairly red through the summer (Dirr, 2009). This hybrid appears to be mostly sterile, but can produce occasional small, dark-purple to black fruit. *P. ×cistena* is hardy to the warmer parts of U.S. Department of Agriculture zone 3 and can be grown to zone 7 (U.S. Department of Agriculture, Agricultural Research Service, 2012). Purpleleaf sandcherry is propagated easily from softwood cuttings and has several landscaping uses that include small groupings, as a patio plant, as a focal-point shrub, for flowering effect, for purple-red foliage, or as a foundation plant.

Prunus ×cistena is typically sold as a 2- to 3-gal container plant, but it grows to a mature size that is too large for many landscapes into which it has been installed. It has an

upright growth habit, does not produce basal branches, and plants become open at the base and develop a “leggy” form. Furthermore, without regular pruning back of branches, the usual form of *P. ×cistena* tends to develop branches that flop over with age. Too often, *P. ×cistena* is purchased and installed in landscapes at a small size, but then grows too large for its intended use and space.

‘UCONNPC001’ purpleleaf sandcherry is a new cultivar of *P. ×cistena* that is superior to the original *P. ×cistena* primarily by being more compact both in height and width. In addition, ‘UCONNPC001’ has a mounded form, with a dense habit and many basal branches, resulting in plants that are full at the bottom, unlike *P. ×cistena*, which can develop a “leggy” base.

Origin

‘UCONNPC001’ originated from cross-pollinations conducted during Spring 2012 between *Prunus pumila* ‘UCONNPP002’ (Jade Parade®) sandcherry, as the female parent, and *Prunus cerasifera* var. *atropurpurea* purpleleaf cherry plum, as the male parent. The new sandcherry plant was discovered and selected during Spring 2016 from within a group of 20 progeny grown in a controlled environment at the University of Connecticut in Storrs, Conn. ‘UCONNPC001’ was selected for its compact growth form, full basal branching, heavy spring flowering, red summer foliage, and vigorous growth.

Description

‘UCONNPC001’ has a mounded and dense plant form that reaches a mature height of 140 cm and a spread of 180 cm (Fig. 1). Branching and foliage occurs all the way to the bottom of the crown, so the canopy is full from the ground to the top of the plant (Fig. 2). The lateral branches of this cultivar are between 10 and 50 cm long, 2 to 3 mm in diameter, with 1- to 2-cm internodes. Branches are held at a 45 to 60° angle from the stem, are firm but flexible in strength, and have a smooth bark texture. The branch color is close to Royal Horticultural Society (RHS) 200A, 200B, 200C and 200D. All colors in the description were designated using the RHS color charts (Royal Horticultural Society, Flower Council of Holland, 1995).

Leaves of ‘UCONNPC001’ are alternate, elliptical, and about 7 cm long by 3.5 cm

wide with broadly acute apices and bases. The leaf margins are evenly serrulate. The upper and lower blade surfaces are slightly embossed with pinnate veins, but are otherwise glabrous. Petioles are 10 mm long with a color of RHS 187A or 187B. Leaf color is dependent on light levels, with greater light producing deeper and brighter purple/red hues. The following leaf colors are all for plants growing under high light conditions. The upper and lower surfaces of young developing leaves are close to RHS 60A, 60B, 46A, and 185A. Fully expanded young leaves (early July) have upper surfaces that are close to RHS 187A, and lower surfaces that are close to RHS 59A and 187C (Fig. 3). Fully expanded old leaves (early September) have upper surfaces that are close to RHS 139A and 187A, and lower surfaces that are close to RHS 189A and 147A.

‘UCONNPC001’ produces numerous small flowers that occur along the length of the previous season’s annual growth (Fig. 4). There are typically 30 to 40 flowers per 15-cm length of stem. Flowers occur at each node, generally numbering four per node, but can vary between one and eight flowers. Flowers have five petals, are about 20 to 25 mm in diameter, last about 10 to 14 d, and are lightly fragrant. Blooming occurs in late April to early May in Connecticut. *Prunus ×cistena* are typically mostly sterile as a result of their interspecific origin, but fruit development has been observed occasionally on ‘UCONNPC001’. When present, fruit are usually solitary, 1 to 2 cm in diameter, and shiny black (closest to RHS 202A and 187A).

Culture and Landscape Use

Plants of ‘UCONNPC001’ have excellent garden performance under a range of conditions but will perform optimally in well-drained soils and with light shade to full sun exposure. Cold hardiness has not been fully evaluated for ‘UCONNPC001’, but purpleleaf sandcherries tolerate winter minimum temperatures as low as about –35°C and are best adapted to locations receiving fewer than 50 summer days with temperatures exceeding 30°C. ‘UCONNPC001’ has exhibited good resistance to leaf spot diseases that are problematic on other *P. ×cistena* genotypes (J. Pedersen, personal communication). Like *P. ×cistena*, ‘UCONNPC001’ responds well to pruning if necessary.

‘UCONNPC001’ is a smaller plant that only grows up to 140 cm tall and 180 cm wide. It has a mounded form, with a dense habit and many basal branches, so it remains fully branched to the ground even as a mature plant. Profuse flowering on ‘UCONNPC001’ in April creates a strong display and makes the plant useful for supporting pollinators. Like *P. ×cistena*, ‘UCONNPC001’ has vibrant red summer foliage that provides visual interest throughout the growing season. ‘UCONNPC001’ is highly adaptable to a wide range of landscape conditions, exhibits resistance to leaf spot, and is easy to cultivate. We believe these traits make ‘UCONNPC001’ superior to *P. ×cistena*.

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Fig. 1. A 3-year-old container-grown plant of 'UCONNPC001' sandcherry showing its compact, densely branched, and mounded habit.

Fig. 2. 'UCONNPC001' sandcherry produces lateral branches freely at the base of the plant, resulting in a full canopy from the ground to the top of the plant.

Clonal Propagation

'UCONNPC001' is easily propagated by softwood cuttings collected from mid-June to mid-July, but cuttings should be firm at the base when collected. Leafy cuttings can be rooted outside of the optimal softwood cutting time frame, but rooting and liner grow-out may not be optimal. Peat moss:perlite (1:1, v:v) or similar propagation media work well. Cuttings can be double wounded and treated with 3000 ppm indole-3-butyric acid (IBA) in talc to produce rooting percentages of greater than 90% and profuse root systems in 6 weeks. Following rooting, cuttings can be potted and

Fig. 3. Brightly colored purple-red summer foliage of 'UCONNPC001' sandcherry as seen in early July in Connecticut.

Fig. 4. A densely flowered branch of 'UCONNPC001' sandcherry showing the abundant light-pink to white, five-petaled flowers that are produced in late April to early May in Connecticut.

fertilized to produce new growth. Rooted cuttings overwinter well without losses. Plants are easy to grow in containers using standard container nursery production practices, and

market-ready plants can be produced in 2 to 3 years.

Micropropagation can also be used to propagate 'UCONNPC001' clonally. Shoot multiplication *in vitro* can be achieved using Murashige and Skoog medium and vitamins (Murashige and Skoog, 1962), 0.5 mg/L benzyladenine, 3% sucrose, and 0.8% agar, with a pH of 5.7. Cultures should be maintained at around 25 °C with a 16-h photoperiod of 40 $\mu\text{mol/m}^2/\text{s}$ provided by cool-white fluorescent lights with a subculture cycle of between 28 and 35 d. An 8 $\times$ shoot multiplication rate can be expected. Microshoots are easily rooted (100% rooting) under nonsterile conditions in clear plastic salad trays containing a 1:1 (v:v) peat moss:vermiculite mix under fluorescent lighting. Microcuttings treated with 1000 ppm IBA in talc root in 3 weeks and can then be acclimated to drier air over a period of 10 to 14 d before being moved to a greenhouse. Greenhouse acclimation to avoid leaf desiccation can be challenging and is aided by the use of clear plastic humidity dome covers and 50% shade cloth.

Availability

'UCONNPC001' was patented (US PP29575 P2) by the University of Connecticut on 7 Aug. 2018. It has been licensed exclusively to Monrovia Nursery Company, Azusa, CA, and is being marketed under the tradename of Darkstar[®].

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