Documentation on the Development of Ornamental Redbud (*Cercis canadensis*)
'NC2015-12'
(To be marketed as Golden Falls™)

Ornamental redbud NC2015-12 (*Cercis canadensis*) was derived from a controlled hybridization of *Cercis canadensis* 'Covey' (weeping, green leaf) and 'Hearts of Gold' (non-weeping, gold leaf). The goal of the controlled hybridization was to develop a gold leaf, weeping form of this popular ornamental tree. The initial hybridization was made by hand in March 2009 at the Horticultural Field Lab greenhouse in Raleigh, NC using flowering, potted trees of 'Covey' and 'Hearts of Gold'. Hybrid F1 seed was harvested from 'Covey' on September 28, 2009. Seeds were acid scarified, and subsequently cool-stratified for about 6 weeks in fall 2009 to satisfy the seed chilling requirement. Seed were sown on November 7, 2009 under greenhouse conditions, and 16 F1 seedlings were ultimately recovered, and initially grown in containers in the greenhouse in spring and summer 2010.

Seedlings subsequently were transferred to a field isolation block on November 8, 2010 at the Sandhills Research Station. All 16 F1 trees showed green leaves and non-weeping architecture. F1 trees were intermated using natural pollinators, and the first F2 seed was obtained in summer 2013. F2 seed was acid scarified and cool stratified, germinated, and seedlings were grown in the greenhouse during summer 2014. Only gold leaf seedlings were desired, hence all green leaf seedlings were eliminated at the seedling stage. During summer 2014, 26 weeping, gold leaf trees were selected, and subsequently established in a field planting in fall 2014 at the Sandhills Research station. During the summer of 2015, five seedlings showing the best combination of gold leaf color and weeping architecture (NC2015-4, 10, 12, 16, and 26) were selected. Budwood of these 5 original seedlings was sent to both Hidden Hollow Nursery and Jackson Nursery in Belvidere, TN for initial propagation and nursery trialing using chip budding on *Cercis canadensis* rootstock. Five trees of each selection were propagated. Based on evaluation of the initial seedling trees at the Sandhills Research Station for 3 years, and evaluation of performance in Belvidere, TN in 2016 and 2017, NC2015-12 ultimately was chosen as the superior selection, showing the best combination of gold leaf color, resistance to leaf scorch, and weeping architecture.

NC2015-12 shows a distinct weeping growth habit (Figure 1). Tree height is dictated by tree pruning and training practices. Typically, the central leader of the tree is trained to a support stake in the production nursery to a prescribed height, usually around 5-6 feet, at which point the growth past this height, and all lateral shoots, will immediately demonstrate weeping behavior. Leaves of NC2015-12 are yellow-green (gold). Maximal gold leaf color is expressed early to mid-season, and declines as summer temperatures increase after mid-July (Figure 2). Flowers of

NC2015-12 are abundant, and typical of the species in color (light purple), size, and morphology. Flower color is light purple, typical of the species (Figure 3).

NC2015-12 will be licensed to Star Roses and Plants (SRP), with whom I have a Sponsored Research Agreement. NC2015-12 has drawn considerable interest in the nursery trade, with several production nurseries licensed by SRP having already committed to producing the plant. NC2015-12 represents the first golden leaf, weeping redbud available in the trade. It will be an excellent companion to the very popular 'Ruby Falls', developed in my program and released by NCSU in 2007.

Figure 1. Two-year-old tree (beginning of third growing season) of NC2015-12 at the Sandhills Research Station. Image taken May 30, 2016.

Figure 2. Gold immature foliage (left) and mature green foliage of NC2015-12 (left). Image taken August 9, 2017.

Figure 3. Purple flower of NC2015-12. Image taken April 4, 2018.

Figure 4. Trial production of NC2015-12 at Hidden Hollow Nursery in Belvidere, TN. Image taken August 9, 2017.