Florida Department of Transportation Research

Comparing Persistence and Fecundity of Florida-Ecotype and Non-Florida-Ecotype Wildflowers

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Current Situation

Roadside plantings beautify Florida's highways and make traveling more pleasant, but they also perform a vital engineering function by helping to preserve the integrity of the roadway and to prevent erosion. Wildflowers have been used in roadside plantings since highway beautification efforts began in the early 1960s. However, the Florida Department of Transportation (FDOT) has found that some wildflowers do not establish consistently. This might be explained by the fact that the wildflower seed, which comes from western Plains states, is not well adapted to Florida's subtropical climate. FDOT therefore sought Florida plant sources – Florida ecotypes – which presumably would establish more consistently in Florida soils. However, these seeds are more expensive and more difficult to procure, raising the question of whether the additional expense is justified.

Plantings of bright yellow golden tickseed beautify Florida's highways.

Research Objectives

University of Florida (UF) researchers set up wildflower test fields at two Florida locations to test the establishment of plants from Florida and non-Florida sources and their ability to grow and re-seed.

Project Activities

Test sites were set up at two UF/IFAS facilities: in north central Florida, the Plant Science Research and Education Unit at Citra; and in southwest Florida, the Ranch Cattle Research and Education Center at Ona. In October 2014, two species of wildflower – partridge pea (*Chamaecrista fasciculata*) and golden tickseed (*Coreopsis basalis*) – were planted at each location. At each facility, Florida-grown and non-Florida-grown varieties of each wildflower were grown on plots separated by at least 500 meters from each other to minimize cross-pollination and transfer of genes. The species were seeded into bahiagrass, simulating a roadside environment. After seeds had been produced and matured, the plots were regularly mowed to simulate highway maintenance. The plantings were replicated three times at each site for statistical purposes.

In April 2015, in each plot, counts were made of the plants that had emerged and established. In May 2015, these plots were revisited. Seed was collected and sent to the Iowa State Seed Lab to determine percent germination and seed quality from both Florida- and non-Florida-grown parent plants. No statistical differences were found between plots. A freeze in December 2014 had damaged the Citra plots, but a March replanting showed little emergence by April. Non-Florida plants bloomed briefly and produced no seed. Florida plants bloomed profusely but produced nonviable seed.

Evaluation in 2016 showed a continuation of the trend: flower production was almost nil. By March of 2017, no flowers were found in any of the plots. Overall, it was not possible to conclusively compare the seed sources.

Project Benefits

Continued efforts can help determine the most successful and economic varieties of wildflowers for use in roadside planting.

For more information, please see www.fdot.gov/research/.