Position Title: Horticultural Plant Breeding and Native Plant Conservation – Plant Sciences Department, Assistant/Associate Professor

Brief Description: The Green Industry is one of the largest and fastest-growing agricultural industries in Tennessee with 295 million in sales reported in 2012. Urbanization has stimulated demand for horticultural plant materials that are not only aesthetically pleasing but that also thrive in and support sustainability of the urban landscape environment and support conservation of Tennessee native plant resources. The University of Tennessee seeks a qualified candidate in the area of plant breeding for developing horticultural crops (e.g., herbaceous, perennial and nursery commodities, including small fruit and vegetable crops) that provide superior performance, increased sustainability, and enhanced ecosystem services in rural and urban agriculture, while also promoting conservation of native plant populations. Examples include (but are not limited to) developing horticultural cultivars and “nativars” that:

- exhibit superior functionality in space-limited urban environments
- exhibit superior cold, heat, salt, shade, and/or drought tolerance
- demonstrate superior disease- or pest-resistance
- attract beneficial and pollinator insects or repel pest arthropods by secondary metabolite production
- provide or enhance ecosystem services to community forests and managed landscapes
- protect and conserve populations of regionally threatened and endangered plant species
- possess sterility or reproductive incompatibility traits compared with historically invasive horticultural plant cultivars and species
- perform well in nutrient deficient, alkaline or aluminum-rich soils
- possess ability to bind, sequester, or metabolize metals, nutrients or pesticides in groundwater and surface runoff

Expected Outcomes/Goals:

- Expand existing Green Industry markets through the development of patented superior cultivars of popular landscape plants, native plants, and small fruits and vegetables that are both aesthetically pleasing and that provide ecosystem functional services, enhanced sustainability, and superior performance in the rural and urban landscape environment
- Support healthy start and childhood obesity initiatives through the development of small fruits and vegetables developed specifically for performance in urban environments
- Provide collaborative opportunities to elucidate genetic or metabolic mechanisms by which superior traits are expressed in plant selections
- Enhance the reputation and visibility of UTIA research products within and outside Tennessee through UTIA-affiliated horticultural plant patents and cultivars
- Promote conservation of native plant populations and the ecosystems they support
- Invigorate collaborative opportunities with federal, state and private agencies and foundations with complimentary missions of conserving Tennessee and regional natural plant resources.
- Strengthen on-going research in Departments of Plant Sciences, Entomology and Plant Pathology, Forestry, Wildlife & Fisheries, and Agricultural and Resource Economics by
bringing new characteristics of functionality to marketable and patentable horticultural plant commodities

Potential Collaborations:

- Alternative Cropping Systems, Urban & Agricultural Sustainability
  - **Plant Sciences**: D. Butler, A. Wszelaki, A. Fulcher, B. Klingeman, C. Sams, D. Lockwood, Klingeman, S. Hamilton
  - **Nutrition**: H. Raynor, S. Colby, B. Anderson-Steeves

- Phytoremediation & Ecological Restoration
  - **Plant Sciences**: B. Collett, Curtis Stewart, CN Stewart, M. Cheng
  - **Entomology and Plant Pathology**: S. Jean-Felippe
  - **Ecology and Evolutionary Biology**: C. Kwit, J. Bailey, P. Armsworth, B. Fitzpatrick, J. Fordyce

- Bionatural, Nutriceutical & Phytonutrient products
  - **Plant Sciences**: M. Chen, D. Kopsell
  - **Entomology and Plant Pathology**: B. Ownley

**Approximate Appointment**: 75% research/25% teaching