

Sustainable Practices in Ornamental Crop Production Systems

Dr. Genhua Niu, Texas A&M AgriLife Research Center at El Paso, Texas A&M University System

Dr. Guihong Bi, Mississippi State University

Dr. Robin Brumfield, Rutgers University

Dr. Mike Evans, University of Arkansas

Dr. Tom Fernandez, Michigan State University

Dr. Amy Fulcher, University of Tennessee

Dr. Robert Geneve, University of Kentucky

Dr. Rebecca Schnelle, University of Kentucky

Dr. Ryan Stewart, Brigham Young University

Dr. Sven Verlinden, West Virginia University

Support provided by: USDA-NIFA, Specialty Crop Research Initiative and Texas A&M AgriLife Research

BACKGROUND

Plant production facilities for ornamental container plants are high input systems using large amounts of water, fertilizer, pesticides, plastics, and labor. The use of renewable and biodegradable inputs while growing an aesthetically pleasing and healthy plant will improve the economic, environmental, and social sustainability of current production systems. Green industry stakeholders have identified production practices which reduce plastic and water use as a major focus to increase sustainability. However, the environmental and economic costs associated with these specific practices are undetermined.

OBJECTIVES

This collaborative, multi-university research project will analyze the use, impacts, economic costs and environmental effects of biocontainers from nursery production to landscape use. Specific objectives of this research are to:

- Evaluate the sustainability of alternatives to plastic containers for use in greenhouse and nursery systems,
- Evaluate the impact of biocontainers on irrigation management practices in containerized nurseries, and
- Evaluate the impact of biocontainers on landscape performance of selected crops and plantable pot degradation in landscapes.

FINDINGS AND BENEFITS

- The immediate impacts of this project will be directly related to alternative containers and water use efficiency. When adopted, the alternative pots will reduce the amount of plastic containers used during crop production. A reduction in the use of petroleum-based plastics is of benefit to the industry due to reduced negative environmental impacts and reduced energy usage during pot manufacturing.
- Information will be provided to industry leaders supporting critical decisions on the use of sustainable practices related to container choice and irrigation management on economic and environmental implications.
- Guidelines will be provided as a foundation for subsequent management tools leading to national or regional blueprint for identifying, implementing and assessing sustainable production practices in greenhouse and nursery settings.



Photo: Impatiens plants in different types of bio containers.