

# CASH CROP LAND SUITABILITY ANALYSIS USING ENVIRONMENTAL SPATIAL INFORMATION THROUGH AUTOMATED GEOSPATIAL MODEL

Sudhanshu Sekhar Panda

---

AUTHORS: Gainesville State College - Institute of Environmental Spatial Analysis, 3820 Mundy Mill Road Oakwood Georgia 30566

REFERENCE: *Proceedings of the 2013 Georgia Water Resources Conference*, held April 10–11, 2013, at the University of Georgia

---

**Abstract.** Georgia's agricultural industry plays a huge role in the state's economy, contributing billions of dollars annually. The agricultural production may increase with proper site specific crop management (SSCM). One of the basic SSCM approach is to grow crops in the best suitable locations for higher production. As we know, crop production would increase with favorable soil types, topography, land-use and climate, especially precipitation. The goal of this study was to develop a production suitability map of Georgia's three main cash crops: corn, cotton, and peanuts using geospatial technology in four agriculture rich counties of South Georgia, Seminole, Decatur, Colquitt, and Mitchell. High resolution SSURGO data, very high resolution (1/9 arc second) DEM raster, and 1 m resolution NAIP imagery were collected from the USDA-NRCS geospatial data gateway and precipitation data were collected from GA--AEMN weather stations and the NWS stations in those four counties. Suitability rasters were created from each spatial data layers for the individual crops using the attributes available with the data and personal decision making scenario development. Once all suitable rasters were created they were combined into one suitable map (raster) using weighted sum analysis. For three crops, three suitable rasters were created. All three crop suitable rasters were finally analyzed to suggest suitable locations for growing those cash crops in the four counties. This study is an important eye-opener for agricultural decision makers for high crop production with zero to little extra investment but by just managing the environmental factors properly through geospatial decision making. Above all, the study developed an automated geospatial model that can be easily replicated in other study areas with only little data tweaking.