

# **1661 Development of a precision areawide pest management decision system for cotton – Preliminary study**

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Crop models simulate growth and development, and provide relevant information for the routine management of the crop. Integrating crop models with other information technologies such as geographic information systems (GIS), variable rate technology, remote sensing, and global positioning systems (GPS) could further optimize site specific farming practices to address crop production and environmental issues. The overall objective of the research was to develop a precision areawide pest management decision system (PAPMDS) that includes the (cotton) integrated crop ecosystem management model (ICEMM), the aerial spray drift model AgDISP, remote sensing, GIS/GPS, and variable rate technology. The research included updating the ICEMM model, linking ICEMM and AgDISP, developing base maps for tentative aerial applications using remote sensing/GIS/GPS data, identifying variables that relate to the process of aerial application, and modeling interactions between the variables. Maps were generated by overlay of GIS-based ground truth data and classified remotely sensed images with false color coding for spatial pattern enhancement of pest infestation distribution. The system will be implemented by aerial applicators using aircraft equipped with variable rate systems.