

**THE COTTON MODEL
AND GRAPHICAL USER INTERFACE
E. Mironenko, Ya. Pachepsky and B. Acock
USDA, ARS, Remote Sensing and Modeling Lab
Beltsville, MD
Duke University
Durham, NC
University of Maryland
College Park, MD**

Abstract

The second generation cotton model needed a tool to simplify operation of the crop simulator by end users. Our objectives were (a) to develop a graphical user interface (GUI) specifically oriented to on-farm use, and (b) to research the possibility of building a generic GUI that could be used with many crop simulators not necessarily having the same structure of input data. We called the interface GUICS meaning graphical user interface for crop simulations. GUICS is built on the usability paradigm developed by software designers and has a user-centered design based on results of human-computer interaction studies. The usability of the interface is facilitated with special features that enhance the 'directness', 'consistency', 'user-in-control', 'forgiveness', 'feedback', and 'simplicity' of the interface. Including a simulator in GUICS is a straightforward operation that does not require changes in the simulator code. The GUICS prototype was evaluated by its future users in interviews, during which they had hands-on experience. Two years of on-farm use of GUICS with the soybean model GLYCIM has proved the usability of the interface.