Cotton Production Model

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**Background** - Over the last 30 years, the U.S. Department of Agriculture’s (USDA) Agricultural Research Service (ARS) has conducted a wide range of research on cotton, including work to develop a series of "production models" designed to serve as decision aids to cotton producers. In 1996, ARS decided to develop a new "second generation" Cotton Production Model (CPM) that would retain the best features of the earlier versions in a new, more versatile, and more user friendly framework. The development process was completed to the stage of beta-testing, when the need to redirect limited resources to other priorities caused ARS to decide not to complete the validation process.

ARS believes that CPM, while only partially validated, has the potential to make useful contributions to American cotton producers when completed. For these reasons, ARS decided to make the model available for further development and commercialization.

**Unconditional Release** - The model is now being released at no cost to the public for further development. ARS is releasing the CPM so that interested parties can continue to develop the model for their own needs and purposes. ARS does not foresee providing monetary or technical support to refine, adapt, or use this model, and provides no warranty for its use for any purpose. ARS does not reserve any rights or interests in the work that may be performed by others to refine or adapt it. ARS does reserve the right to continue its own refinement of the current version of the model at a later date, should program needs require it.

**Information on CPM** - A new process-based cotton model, CPM, has been developed to simulate the growth and development of upland cotton (*Gossypium hirsutum* L.) throughout the growing season with minimal data input. CPM predicts final cotton yield for any combination of soil, weather, cultivar and sequence of management actions.

The personal computer system requirements to run CPM are minimal, requiring IBM-compatibility, Windows95+, 64K RAM, and 4Mb hard disk space.

ARS believes that CPM has the potential to be useful as a decision aid for cotton producers and crop consultants. If fully developed, it would be a valuable tool to optimize management inputs such as irrigation, fertilization, plant growth regulators, and defoliant application prior to harvest. In its current version, however, CPM has not yet been fully validated to be useful as a decision aid. The released version should be considered an advanced model suitable for research purposes. ARS does not endorse its use for any other purpose at this time.