

## Simulation Modeling to Predict the Adoption and Economic Value of a Crop Technology Innovation

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Simulation modeling is a useful tool for identifying the potential impacts of technology innovations. The use of simulation modeling in this capacity is illustrated for the case of a temperature-sensitive polymer seed coating that has recently been introduced. This information is important both to a company who is trying to market the new technology and to the potential users of the technology. For this analysis, we take the perspective of a typical farmer as a potential user of the technology. Simulation modeling is used in three ways in the analysis. The effect of random weather events and cropping system are used in the EPIC simulation model to: 1.) identify field conditions that determine *when* the technology can be used and 2.) identify crop yields and production costs that quantify *what* happens when the technology is used. Finally, an economic model is constructed using a decision-tree approach to 3.) incorporate the *when* and *what* into the user's management plan to see *how* the technology will be used. Integrating these three components provides a framework for predicting the extent to which this new technology will be used, the effect of the technology on cropping practices, and the economic value of the technology to crop producers.