

## **A Decision Support Tool for Predicting Alfalfa Yield and Quality to Enhance Resource Use Efficiency**

Isaya Kisekka, UC Davis

Michael Ottman, University of Arizona

Kenneth J. Boote, University of Florida

Jessica A. Torrion , University of Florida

Gerrit Hoogenboom, Montana State University

Alfalfa hay is among the top five cash crops in the United States due to its high demand among dairy feeders. However, most of the alfalfa is produced in arid and semi-arid western United States where water for crop production is limited. Making optimum production and marketing decisions under limited resources is not trivial and requires decision support tools that can help farmers predict alfalfa yield and quality as affected by management decisions. Through the support from the Alfalfa and Forage Research Program, we are developing an alfalfa crop simulation model and decision support tool that crop consultants and farmers can use to predict alfalfa yield and quality. Our project objectives were to: 1) develop an alfalfa crop growth model within DSSAT, 2) conduct experiments to generate new data for model development, calibration, and evaluation, 3) integrate the new alfalfa crop model into the iCrop decision support tool and 4) disseminate information and technology through extension programming to growers, crop consultants and extension professionals and nationally through eXtension. The project is still in its initial stages, we will report on progress being made on establishing field experiments in Montana, and Arizona. Modeling efforts being conducted at University of Florida and decision support tool development at University of California Davis.