

Development of an Operational System for Regional Crop Production Assessment

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Dr. Paul Doraiswamy developed practical, innovative procedures to solve a major problem encountered by Research and Development Division (RDD) of the National Agricultural Statistics Service (NASS), U.S. Department of Agriculture. The NASS Crops Branch is mandated to operationally assess domestic crop production which is of strategic and economic importance to domestic and global grain trading. The timeliness and accuracy for crop production estimates has been a considerable challenge for several decades. Corn and soybean crop estimates are finalized approximately three months after harvest following NASS's field statistical survey of crop yield to produce an accurate state estimate.

Dr. Doraiswamy led a successful research program that developed, evaluated, and adapted satellite-based remote sensing technology for operational prediction of crop yields. Imagery-based techniques predict crop yields prior to harvest by mapping seasonal crop condition and progress. The technology developed by Dr. Doraiswamy scales the yield estimates from field to county to state by accounting for every field and subfield observation using satellite resolution (250 m). Goals of technology transfer are to provide rapid, accurate and

quantitative estimates of crop yields as early as possible during the crop growing season and mitigate any drastic changes due to natural or man-made disaster. The technology developed by Dr. Doraiswamy provides a foundation for more timely, thorough and accurate corn and soybean production monitoring which is used by NASS and available for USDA's global crop production assessment program. Accurate production assessment and prediction provides significant economic and humanitarian benefits: U. S. agriculture will be more competitive in the global market place by reducing the vulnerability of global and domestic market prices to unforeseen crop failures. Strategic decision makers will be able to better assess the amount of food aid needed for areas affected by crop failures, and more effective response to Famine Early Warning programs is now possible.

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