Kelly R. Thorp, PE, research agricultural engineer, USDA Agricultural Research Service, is being honored for pioneering remote sensing and modeling solutions to advance water and nutrient management in precision agriculture.

In his role at the USDA-ARS, Thorp focuses on developing and applying informational technologies to understand cropping system processes, improve water and nutrient management, and evaluate agricultural management practices at field and regional scales.

Thorp develops remote sensing methods, computer simulation models, and geospatial technologies for improving soil, water, nutrient, and pesticide management in cropping systems and for enhancing plant breeding and genetics research. His research has advanced remote sensing and crop modeling for site-specific fertilizer and herbicide management in corn and soybean systems. He conducted model-based assessments of drainage water management to reduce nitrate losses in the Midwest. He improved precision irrigation technologies for cotton, wheat, and industrial crops in the Southwest. He applied hyperspectral remote sensing for high-throughput plant phenomics and codified standardized evapotranspiration methodologies in the DSSAT cropping system model and the "pyfao56" Python package. Additionally, he improved simulation models and data resources for evaluating modern cotton production systems.

A 27-year ASABE member, Thorp has been actively involved in many committees. Thorp has been an associate editor for ASABE journals since 2010 and is currently serving on the ASABE Nominating committee. He has chaired several ASABE technical committees including Precision Agriculture, Computational Methods, Simulations and Applications, and the Information, Technology, Sensors, and Control Systems Executive and Steering committees. He is also a member of the Irrigation Group and Cotton Engineering.

Thorp has authored or coauthored over 130 articles in refereed journals since 2004, covering topics such as remote sensing for crop status assessment, precision agriculture technologies, crop production system modeling, nitrogen fertilizer management, irrigation and drainage water management, plant phenomics, bioenergy crops, and evapotranspiration. He has contributed 56 non-refereed papers, given 72 oral presentations, and presented 11 posters. His nationwide and international recognition is evidenced by 37 invitations to present research at regional, national, international, and online venues. Thorp has served as principal investigator or co-investigator on 29 extramural research grants totaling more than $15,000,000. He has received two ASABE Superior Paper awards, recognitions for service as a manuscript reviewer and associate editor, and the L. R. Ahuja Ag Systems Modeling award from the Soil Science Society of America.