

AGRICULTURE

Farmer Perceptions of Big Data in Agriculture

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Big data is an increasingly important issue in modern agriculture. Major design advances in farm equipment, including the use of electronic and smart technologies, now make it possible to collect vast amounts of digital information about field applications, crop harvests, and other key farm operations. Farmers' perceptions are important to understanding their acceptance and use of the technologies. However, due to rapid introduction of the technology in the agricultural sector, very little social science research has investigated farmers' perceptions of big data, including data security and privacy risks. Seniors enrolled in a College of Agriculture capstone course used survey research methods to address this void in the literature. The researchers designed and field-tested a questionnaire that included items on farmers' sociodemographic characteristics, attitudes toward big data, and perceived concerns about data security risks. Following institutional review board (IRB) approval, the questionnaire was administered to farmers attending the 2015 Fort Wayne Farm Show. A novelty "wrench" ink pen was offered as an incentive to participate in the research. Usable questionnaires were received from 73 farmers. Results revealed that farmer-participants hold generally positive attitudes toward big data in agriculture, yet tended to value traditional farm management tools, such as soil sampling, over more advanced technologies. Relatively few participants indicated a high awareness of data security and other risks. Contrary to expectations,

increased concern about data security was not associated with age or education. These early findings will serve as a benchmark for continued social science research investigating farmers' perceptions toward big data in agriculture.

Research advisor Mark Tucker writes, "Armenda, Elizabeth, and Stacy designed a sound project that investigates farmer perceptions of big data in agriculture. Their work neatly combines the old with the new—farm adoption studies are among the oldest strands of survey research, while analyses of big data use and potential are commonplace in contemporary literature."



Little social science research has examined farmers' perceptions of big data.

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