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Agricultural economics alumna and Jeff Peterson earn publication honor

By Amanda Erichsen

Alumna Ya Ding and associate professor Jeff Peterson earned an award for outstanding article among those published in 2012 in the Journal of Agricultural and Applied Economics, or JAAE, the official journal of the Southern Agricultural Economics Association, or SAEA.

The article, "Comparing the Cost-Effectiveness of Water Conservation Policies in a Depleting Aquifer: A Dynamic Analysis of the Kansas High Plains," was published in the May 2012 journal issue. The award will be announced during the association's business meeting and awards program on Feb. 4 in Orlando, Fla.

Ding earned her Ph.D. in 2005 from the agricultural economics department. Peterson, agricultural economics associate professor, served as her adviser during this time. Currently, Ding is an associate professor in the School of Management and Economics at the University of Electronic Science and Technology located in Chengdu, China. The paper is a continuation of the research she began for her dissertation while at Kansas State.

The study compares the cost-effectiveness of two types of policies to conserve groundwater in the Kansas portion of the Ogallala Aquifer. Both policies are commonly discussed and have been implemented to varying degrees. One policy is a technology cost-share program, which the government pays a portion of an irrigator's investment in more efficient irrigation systems. The second policy is a water-right buyout program in which the government pays a farmer to cease irrigating a specific tract of land. From the public's point of view, taxpayer funds are best used in the program that conserves the most water per dollar expended. This calculation is complicated by the fact that water savings depend on the usable lifetime of the aquifer as well as on farmers' behavioral responses to a technology upgrade. For example, after a new technology is installed, the water saved may less than expected because farmers may switch to a more water-intensive crop or expand the area irrigated.

This paper assesses the cost-effectiveness with a computational model that simulates the responses of farmers over time, accounting for the incentives to plant different crops as the aquifer gradually depletes and as technology is upgraded. The study finds that the more cost effective of the two policies depends on the initial saturated thickness of the aquifer, which implies that more water can be saved at lower overall taxpayer cost if the policies were targeted to different locations.

The paper can be viewed at http://ageconsearch.umn.edu/handle/123781.