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## UT-ORNL to Shepherd US-China Transdisciplinary Environmental Research Network

*National Science Foundation Grant Supports International Environmental Solutions*



*Scientific advances regarding the conversion of agricultural crops into renewable sources of bioenergy while minimizing water consumption and environmental impact are among the research collaborations that may be included in a new transdisciplinary environmental research network, the FEWS Research Network. The effort will encompass sustainable use of natural resources for food, energy and water systems. UTIA and ORNL have a history of collaborative efforts regarding the production and conversion of environmentally friendly bioenergy crops such as switchgrass (shown), which may also be used a drought-tolerant forage for livestock. Photo of switchgrass harvest in East Tennessee by P. McDaniels, courtesy UTIA. Download*

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*Patricia McDaniels,  
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KNOXVILLE, Tenn. — A new grant sponsored by the U.S. National Science Foundation (NSF) will support an environmental research network designed to identify transdisciplinary research opportunities and collaborations for scientists in the United States and China working to achieve sustainable use of natural resources for food, energy and water systems.

U.S. collaborators establishing the network include scientists with the University of Tennessee Institute of Agriculture (UTIA), the University of Tennessee, Knoxville (UT), and Oak Ridge National Laboratory (ORNL). Frank Löffler, a UT/ORNL Governor's Chair in Microbiology and Civil and Environmental Engineering with an adjunct appointment in the UTIA Department of Biosystems Engineering and Soil Science, will direct the effort.

In addition to \$300,000 being provided by the NSF, the Natural Science Foundation of China (NSFC) is contributing approximately \$150,000 to the project.

*image.*

The initial goals of the effort are to (1) identify transdisciplinary environmental research opportunities that address challenging global issues involving food, energy or water systems; (2) to develop a framework to overcome hurdles to interdisciplinary research both between and among collaborating U.S. and Chinese researchers; and (3) to establish models for education, training, communication and efficacy evaluations of the outputs of the international cooperation. The ultimate goal of the project is to enhance the use of natural resources to meet the needs of the growing human population while maintaining resource levels that are environmentally acceptable and sustainable.

Nicknamed "EAGER: FEWSTERN: US-China Food-Energy-Water Systems Transdisciplinary Environmental Research Network," or FEWS Research Network for short, the project will build upon and extend the efforts of the Joint Research Center for Ecosystem and Environmental Change (JRCEEC), which was established in 2006 and is the foundation for a U.S. State Department-designated Ecopartnership with China. The FEWS Research Network is expected to add new conduits for information exchange, student training opportunities and collaborative efforts between U.S and Chinese researchers in the broad sustainability and environmental change arena.

The FEWS Research Network, along with other UTIA-based U.S.-China programs, will accelerate the formation of academia-industry partnerships by helping to identify cutting-edge research opportunities, team formation and proposal submission in the food, energy and water nexus arena. Over a two-year period of strategic research planning, identification of grand challenges, teaming workshops and proposal development conferences, the FEWS Research Network will generate technical whitepapers and guidance documents supporting international collaboration and research that might be jointly funded by NSF and NSFC.

In addition to Löffler, other members of the FEWS Research Network leadership team include Jie (Joe) Zhuang, Managing Director of JRCEEC and Professor in UTIA's Department of Biosystems Engineering and Soil Science; William Brown, Dean and Director of UTIA AgResearch; Gary S. Saylor, UT Professor Emeritus of Microbiology; and Virginia Dale, ORNL Corporate Fellow, Director of the Center for BioEnergy Sustainability and Landscape Ecology Group Leader. Dale is also on the faculty of the UT Department of Ecology and Evolutionary Biology.

The first FEWS Research Network workshop is tentatively planned for December 7-9, 2017, in Nashville, Tennessee. Interested scientists should contact Löffler at [frank.loeffler@utk.edu](mailto:frank.loeffler@utk.edu) or Zhuang at [jzhuang@utk.edu](mailto:jzhuang@utk.edu).

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