

**United States Department of Agriculture
Project Initiation**

Project Data for Accession Number 1014961

Project Title

Filling the Pipeline: Transforming Agricultural Drainage Education to Meet 21st Century Water Management Needs

Project Details

Sponsoring Institution National Institute of Food and Agriculture	Project Status COMPLETE
Funding Source NIFA Non Formula	Grant Year 2018
Grant No. 2018-70003-27661	Cumulative Award Amt. \$299,900.00
Proposal No. 2017-06128	Multistate No. (N/A)
Project Start Date May 01, 2018	Project End Date Apr 30, 2023
Program Code [ER] Higher Ed Challenge	

Project Director

Frankenberger, J.

Recipient Organization

PURDUE UNIVERSITY
401 SOUTH GRANT ST
West Lafayette, INDIANA 479072024

Performing Department

Ag and Bio Engineering

Non Technical Summary

Agricultural drainage, a practice that is critical for food and agricultural production on some of the most productive lands of the U.S, is undergoing major changes. Drainage designs that previously focused only on removal of excess water now need to fulfill the additional goal of improving water quality to meet increasing societal expectations of environmental protection, while maintaining cost-effectiveness. Designing effective drainage systems that balance farmers' economic objectives with other societal, environmental, and policy considerations will require more holistic education than was common in the past. Moreover, while the need for engineers with these skills has increased, the number of students taking drainage-related courses has decreased, and it is therefore difficult for any single individual or university to undertake the task of creating curricula that will enable students to develop the next generation of drainage strategies to meet society's growing needs. To meet this instructional challenge, our team of drainage researchers and educators from five institutions in four states (Iowa, Illinois, Indiana, Ohio) proposes to develop a

United States Department of Agriculture Project Initiation

customizable agricultural drainage curriculum for educating students in agricultural or biological engineering, technology, crop sciences, water resources management, and related fields. The audience includes the students who will benefit from increased learning and resulting employment opportunities, agricultural producers, the drainage industry, and the downstream public who will benefit from improved drainage systems designed by students who gain this expertise. Our overall goal is to enhance the capacity of institutions to offer drainage education that includes the technical and contextual elements that are necessary for solving present day drainage challenges and interesting to more diverse groups of students. Our project will develop the curriculum, evaluate and improve it through a cycle of pilot testing and formative assessment, apply it at the four universities included in this project, and then disseminate it broadly for improvement of water management education, resulting in improved drainage designs for production and water quality.

Animal Health Component

Animal Health Component: 0%

Research Effort Categories

Basic	0%
Applied	0%
Developmental	0%

Classification

Knowledge Area (KA)	Subject of Investigation (SOI)	Field of Science (FOS)	Percent
111	5360	2020	100%

Knowledge Area

[111] Conservation and Efficient Use of Water

Subject Of Investigation

[5360] Drainage and irrigation facilities and systems

Field Of Science

[2020] Engineering

Keywords

Agricultural Drainage, Water Management, Collaborative Education, Online Modules, Videos

Goals / Objectives

Our overall goal is to enhance the capacity of institutions to offer drainage education that includes the technical and contextual elements that are necessary for solving present day drainage challenges and interesting to more diverse groups of students. Our project will develop the curriculum, evaluate and improve it through a cycle of pilot testing and

United States Department of Agriculture Project Initiation

formative assessment, apply it at the four universities included in this project, and then disseminate it broadly for improvement of water management education, resulting in improved drainage designs for production and water quality. ?

Project Methods

We plan eight major tasks that will be completed more or less sequentially, although with some overlap: (1) planning the curriculum, (2) developing the modules, (3) piloting the use of the modules in several courses, (4) improving the modules based on the initial formative evaluation, (5) offering the course more broadly, (6) disseminating to colleagues across the region, nation, and potentially internationally, (7) evaluating, and (8) ensuring continued use of and benefits from the modules beyond the life of the project. An Advisory Committee consisting of drainage industry leaders, educators at other institutions, and diversity experts will provide broader input and contribute to achieving the project goals.