Field Day: Digital Tools for Agriculture Research - AG2PI "Coconut" Grant Outcomes

AG2PI — Agricultural Genome to Phenome Initiative

IOWA STATE UNIVERSITY · THE UNIVERSITY OF ARIZONA · University of Idaho · University of Nebraska–Lincoln

Development of robust imaging systems in Field Book

Although phenotyping is a critical step for plant and animal research, the sheer amount of data that must be collected, analyzed, and stored often results in uncollected traits or reduced population sizes. While imaging and image analysis can alleviate some of these bottlenecks, many common imaging approaches are slow or result in unlabeled data which can complicate analysis or produce unusable data. Over the last year, we've increased support for additional image sources in the Field Book app (including USB Cameras, GoPro's, and Canon DSLRs) while overhauling how images are stored to increase stability and speed. By developing the tools to rapidly collect standardized, high-quality images, we're working to promote continued adoption of image-based phenotyping.

Presenter:

Dr. Trevor Rife is an Assistant Professor in the Plant and Environmental Sciences Department at Clemson University. Combining expertise in plant genetics, image analysis, algorithm development, and app deployment, his group develops and validates new methods for data capture in breeding programs.

Data to Science (D2S) – Open Source Online Platform for UAS HTP Data Management

We will introduce an open-source cyberinfrastructure called D2S (Data to Science) to empower agricultural research scientists to collaborate with researchers with diverse backgrounds without geographical limitations. The goal of the D2S is to foster an open science ecosystem for UAS big data-driven scientific innovations by constructing a sustainable cyberinfrastructure, D2S, where scientists not only share their data and discover data published by other research scientists but also share tools to process, visualize, and analyze the UAS data products.

Presenters:

Dr. Jinha Jung is an Associate Professor in the School of Civil Engineering at Purdue University. He is noted for his work in the development of UAS based High Throughput Phenotyping system for agriculture applications.

Benjamin Hancock is a full stack web developer working with Dr. Jung. He is working as a lead developer of the Data to Science online platform.

Dr. Minyoung Jung is a Postdoctoral Research Associate working with Dr. Jung. Her work focuses on geomatics engineering.
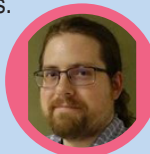
April 24, 2024
10:30 AM–12:00 PM
(Central Time, UTC–5)

Purpose:

Discussion of outcomes from two AG2PI "coconut" seed grant projects as one built out an image-based phenotyping app and the other a platform for data and tool sharing across the community.

Register for this <u>Zoom</u> virtual meeting:

http://tinyurl.com/AG2PI-FD31

Upon registration, you will receive a confirmation email with information about joining the meeting.

A recording will be available at a later date at: **ag2pi.org/**