



Agricultural Genome to
Phenome Initiative

NEWSLETTER

~ Summer 2021 ~

Welcome to the inaugural newsletter from AG2PI!

Here, you will find news related to the grant, updates of activities in which to participate, learn, and contribute to AG2P research community.

Headlines:

- [Grant Funded for Next AG2PI Phase](#)
- [First Seed Grants Awarded](#)
- [Upcoming Events](#)

GRANT FUNDED FOR NEXT PHASE

The USDA NIFA program has awarded AG2PI a \$960,000 grant to enable the group to expand the project's impact. In the next phase, AG2PI will use the additional money to fund more seed grants that support emerging ideas and early development of projects in AG2P fields.

"The new grant is not for internal research," says Patrick S. Schnable, AG2PI project director. "Instead, this renewal will enable us to fund two more rounds of competitive seed grants, allowing us to further engage the more than 1,000 AG2PI participants from across the U.S."

The next RFP for these grants will be released in Fall 2021 and another in Spring 2022. For details on grant eligibility and guidelines, see the [Seed Grants page](#) on the AG2PI website. [Read the full news release](#).

JOIN IN THE AG2PI DISCUSSION

AG2PI team members will be holding workshops at several in-person and virtual conferences later this summer and fall. If you are attending one of these events, please participate in the AG2PI session.

July 14-17: American Society of Animal Science (ASAS) Annual Meeting, Louisville, KY (hybrid of in-person and virtual)

AG2PI Introduction and Community Building Workshop, July 14, 12:30-2:30 PM (EDT)

July 26-30: International Society for Animal Genetics (ISAG) Conference (virtual)

AG2PI Introduction and Community Building Workshop, July 29, 1-3 PM (CDT)

FIRST SEED GRANTS AWARDED

AG2PI has awarded seven seed grants to advance this research field. The awarded projects involve 15 institutions and agencies across the country with grant amounts ranging from

\$15,000–\$20,000. The projects are inter-disciplinary and focus on one or more topics determined by the seed grant committee. These are the first seed grants awarded by AG2PI.

The following are seed grant recipients, listed by lead Project Investigator:

- **Bedrich Benes, Purdue University: *Optimizing 3D Canopy Architecture for Better Crops***
 - To overcome the lack of machine-learning approaches to connect genotype to phenotype, the team will develop simulated growth models to general labeled datasets. These datasets can be used by machine learning algorithms as training data to study the complexities of phenotypic diversity.
- **Cassandra Dorius, Iowa State University: *Ethics, Diversity, and Inclusivity in G2P Research***
 - The project will conduct a series of four interactive workshops to identify relevant AG2P stakeholders; conduct an inventory of AG2P data, repositories, and data-sharing practices; engage with the AG2P community to understand ELSEE research and initiatives; and co-design a blueprint for an ethical, diverse, and inclusive AG2P research culture.
- **Max Feldman, USDA-ARS: *Empowering High-Throughput Phenotyping Using UAVs***
 - A growing source of phenome data collection in agricultural research are Unoccupied Aerial Vehicles (UAV). The project will build a foundation to empower more researchers to use UAVs. The team will complete an international survey of UAV use with agricultural researchers and build a web resource to provide instructional information and benchmarking tools to support UAV users.
- **Breno Fragomeni, University of Connecticut: *Identifying Educational Resources and Gaps in AG2P Data Science Across Plant and Animal Agriculture Genomics***
 - This project seeks to catalog available educational resources as well as identify the gaps and opportunities in animal and plant genomics. We will perform extensive research on the training and educational resources available through surveys to identify the awareness and desired training opportunities.
- **Stephanie McKay, University of Vermont: *Cattle Genome to Herd Phenotyping for Precision Ag***
 - The goal of this project is to exploit new phenotyping technologies and high throughput genomics to improve cattle productivity and profitability. The team will establish a network of researchers from a variety of disciplines and agencies to facilitate generation and implementation of next generation phenotyping technologies in cattle.
- **Abby Stylianou, St. Louis University: *Machine Learning Competitions for G2P and End-of-Season Phenotype Prediction***
 - The team of Stylianou and a graduate student will organize a collection of machine-learning competitions and supporting datasets in agricultural genetics and phenomics research, curated to facilitate the convergence of machine-learning research and scientific discovery in computational phenomics and the G2P relationship. The objective is to map the unprecedented phenomic/genomic

data generated in the ARPA-E TERRA project into defined machine learning problems whose solutions directly impact the understanding of agricultural science.

- **Addie Thompson, Michigan State University: *Seeding Public–Private Partnerships for AG2P Training***
 - The goal of this project is to form public-private partnerships to generate meaningful interactions and innovations in education and training. Outcomes include enhancing graduate student training through current real-life AG2P project scenarios and datasets; generating public educational resources including datasets and code for use by other scientific communities for AG2P training; and serving as a model and test bed for PPP engagement and collaborations in interdisciplinary groups.

UPCOMING EVENTS

Field Days are usually held from 10:30 AM–12:00 PM (CST) on the third Wednesday of each month in virtual format. Topics range from sharing research methods, approaches, and capacities as well as identifying research challenges. Please contact AG2PI to suggest field day topics or if you would like to present at a field day.

- **July 21: Two Case Studies in G2P: Breeding Challenges in Fruiting Trees**
presenter Amit Dhingra

Sign up for our [mailing list](#) to receive information about upcoming field days and other events.

Workshops are more in-depth studies on topics that can help researchers from different backgrounds build knowledge, vocabulary, and technical expertise across disciplines. The workshops are virtual and can range from a single event to multi-sessions, depending on the depth of the topic.

- **July 22, 1:00-3:00 PM (CDT): Introduction to Image Analysis for Phenotyping**
- **August (date TBD): Animal Image Analysis Phenotyping**

Our workshops often have limited participant numbers and they tend to fill up quickly. Sign up for our [mailing list](#) to receive notifications and registration information for upcoming workshops.

Community Events: List your event with us! Submit information about a workshop, webinar, fellowship, or other event so we may share it on the AG2PI [Community Events](#) webpage. Complete the [submission form here](#).

- **July 14, 8-11 AM:** Big Data and Agricultural Carbon Sequestration workshop, Fargo, ND
- **Aug. 9-12:** Transgenic Animal Research Conference (TARC) XIII virtual conference

Fellowships/Training Grants:

- Michigan State University: [National Science Foundation Research Traineeship \(NRT\)](#)
- Montana State University: USDA National Needs Fellowship

PAST EVENTS

Recordings of previous field days, workshops, and conferences are accessible on the AG2PI website. We encourage continuing the conversation started in our various field days by joining our [Slack Workspace](#) where each field day has its own channel. Here you can review questions and answers discussed during the live session or ask your own questions through the [AG2PI Slack channel](#).

NEW STAKEHOLDER PARTNER

The International Maize and Wheat Improvement Center (CIMMYT) has joined AG2PI as a new stakeholder organization and project partner. CIMMYT is one of 18 stakeholder groups supporting AG2PI in advancing the project's goals. The Center, with its global headquarters in Mexico, is a non-profit research and training organization addressing farming challenges in developing countries. Visit the [AG2PI website](#) for a full list of project stakeholders.

Get involved with AG2PI

There are several ways to partner with AG2PI, from individual involvement, partner organizations or as an external partner. Check out the involvement tiers to see [how you or your organization can join to further AG2P research](#).

FEEDBACK IS WELCOME

How often do you want to hear from AG2PI? Please complete the short (two question) survey regarding the frequency of our communication to you:

https://iastate.qualtrics.com/jfe/form/SV_7QHr3BOBqtapZVc

The Agriculture Genome to Phenome Initiative (AG2PI) is a three-year project funded by the U.S. Department of Agriculture's (USDA) National Institute of Food and Agriculture (NIFA) awards 2020-70412-32615 and 2021-70412-35233 to build communities that address the challenges of genome to phenotype (G2P) research across crops and livestock. AG2PI partners include Iowa State University, University of Nebraska, University of Arizona, University of Idaho, and the Iowa Corn Promotion Board.

Contact AG2PI: <https://www.ag2pi.org/contact-us/>

Social Media: Twitter [@AG2PI](#) [YouTube](#)