# Facilitating community unoccupied aerial systems (UAS, drone) knowledge, communication, and data processing across agriculture

Anna Porter[1], Seth C. Murray[1], Mahendra Bhandari[1], Jose L. Landivar Scott[1], Mustafa Arik[1], Aaron James DeSalvio[1], and Alper Adak[1]

[1]Affiliation not available

October 31, 2023

**Abstract**

Unoccupied / Unmanned / Uncrewed Aerial Systems (UAS, also known as drones) are tools that can provide field-based phenotyping and phenomics derived insights into plant breeding, biology, genetics and agronomy. There are many important, yet disparate agricultural UAS activities, occurring in silos which with better communication across research, education, and extension, could create transformative change for all stakeholders. The goal of this USDA-NIFA and AG2PI supported project is to advance knowledge and activities through promoting UAS data collection, processing, analysis, and community discussions. The objectives include: 1) Encourage collaboration pertaining to best practices between university, industry, and personal stakeholders who are currently developing and using UAS tools, ranging from beginner to experts. 2) Process Genomes to Fields (G2F) datasets (2017 to 2023, and up to eleven locations with ~6TB of data) into widely accessible and usable end products the community can directly use. And 3) Institute a user-centered webpage so that contributors and interested parties can access information about UAS based HTP conveniently. To accomplish the goals of the project, a UAS Project Coordinator will work to identify existing use of UAS in agriculture user groups, listen to seasoned advice and newcomer needs, work as a liaison to conduct the sharing of wisdom, and summarize their knowledge and share personal connections across discipline, institutions, and species; making this information easier to access in the future. The project is working to ease the learning process of beginners using UAS tools, as well as sharing the advancements of experienced users on the forefront of innovation and discovery.

***Anna Porter[1]***, *Seth C. Murray[2], Mahendra Bhandari[3], Jose L. Landivar Scott[4], Mustafa Arik[5], Aaron James DeSalvio[6], Alper Adak[7],*

*[1]Texas A&M AgriLife Research, College Station, Texas*

*[2]Texas A&M University, College Station, Texas*

*[3]Texas A&M AgriLife Research, Corpus Christi, Texas*

*[4]Texas A&M AgriLife Research, Corpus Christi, Texas*

*[5]Texas A&M AgriLife Research, College Station, Texas*

*[6]Texas A&M University, College Station, Texas*

*[7]Texas A&M AgriLife Research, College Station, Texas*

**ORCiD:** 0009-0003-9298-8078

**Keywords:** UAS, drone, phenotyping, data, collaboration, webpage, coordinator