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Book Chapters

1. Bishop, M. P., Bagavathiannan, M. V., Cope, D. A., Huo, D., Murray, S. C., Olsenholler, J. A., Rooney, W. L., Thomasson, J. A., Valasek, J., & Young, B. W. (2018). High-Resolution UAS Imagery in Agricultural Research Concepts, Issues, and Research Directions. In *High Spatial Resolution Remote Sensing* (pp. 3–32). CRC Press.

2. de Castro, A., Maja, J. M., Melgar, J. C., Schnabel, G., López-Granados, F., & Peña, J. M. (2021). Optimizing peach management based on hyperspectral and unmanned aerial vehicle (UAV) technology. In *Precision agriculture'21* (pp. 203–209). Wageningen Academic Publishers.

3. de Castro Megías, A. I., Pérez-Roncal, C., Thomasson, J. A., Ehsani, R., López-Maestresalas, A., Yang, C., Jarén, C., Wang, T., Cribben, C., Marin, D., Isakeit, T., Urrestarazu, J., Lopez-Molina, C., Wang, X., Nichols, R. L., Santesteban, G., Arazuri, S., & Peña, J. M. (2021). Applications of Sensing for Disease DetectionDisease detection. In R. Kerry & A. Escolà (Eds.), *Sensing Approaches for Precision Agriculture* (pp. 369–398). Springer International Publishing. https://doi.org/10.1007/978-3-030-78431-7_13

4. Singh, V., Rana, A., Bishop, M., Filippi, A. M., Cope, D., Rajan, N., & Bagavathiannan, M. (2020). Chapter Three - Unmanned aircraft systems for precision weed detection and management: Prospects and challenges. In D. L. Sparks (Ed.), *Advances in Agronomy* (Vol. 159, pp. 93–134). Academic Press. https://doi.org/10.1016/bs.agron.2019.08.004

Conference Papers and Abstracts

1. Ahmad, A., Saraswat, D., El Gamal, A., & Johal, G. S. (2021). Comparison of deep learning models for corn disease identification, tracking, and severity estimation using images acquired from uav-mounted and handheld sensors. 2021 ASABE Annual International Virtual Meeting.

2. Bagnall, C., Thomasson, J. A., Sima, C., & Yang, C. (2018). Quality assessment of radiometric calibration of UAV image mosaics. *Autonomous Air and Ground Sensing Systems for Agricultural Optimization and Phenotyping III*, *10664*, 1066404.

3. Balota, M., & Oakes, J. (2016). Exploratory use of a UAV platform for variety selection in peanut. *Autonomous Air and Ground Sensing Systems for Agricultural Optimization and Phenotyping*, *9866*, 54–62.

4. Balota, M., & Oakes, J. (2017). UAV remote sensing for phenotyping drought tolerance in peanuts. *Autonomous Air and Ground Sensing Systems for Agricultural Optimization and Phenotyping II*, *10218*, 10218C.

5. Balota, M., Sarkar, S., Cazenave, A. B., Burow, M. D., Bennett, R., Chamberlin, K., Wang, N., White, M., Payton, P., Mahan, J., Chagoya, J., & Sung, C. J. (2021, July 12). *Vegetation indices enable indirect phenotyping of peanut physiologic and agronomic characteristics*. The 53nd Am. Peanut Res. Ed. Soc., Virtual.

6. Balota, M., Sarkar, S., Cazenave, A. B., & Kumar, N. (2021, November 7). *Plant characteristics with significant contribution to peanut yield under extreme weather conditions in Virginia*. ASA-CSSA-SSSA annual meeting, Salt Lake City, UT.

7. Cazenave, A. B., Kumar, N., Balota, M., Haak, D., & Dunne, D. (2021a, July 12). *Using multispectral drone camera to differentiate tolerant recombinant inbred lines of peanut grown under rainout shelters*. The 53nd Am. Peanut Res. Ed. Soc., Virtual.

8. Cazenave, A. B., Kumar, N., Balota, M., Haak, D., & Dunne, D. (2021b, November 7). *Use of aerial imagery to screen recombinant inbred lines of peanut for drought tolerance*. ASA-CSSA-SSSA annual meeting, Salt Lake City, UT.

9. Cazenave, A. B., Oakes, J., Thomason, W., & Balota, M. (2019). Use of unmanned aerial vehicle extracted data to predict health and tiller count in wheat. *Autonomous Air and Ground Sensing Systems for Agricultural Optimization and Phenotyping IV*, *11008*, 110080X.

10. Chakraborty, M., Khot, L. R., & Peters, R. T. (2018, June 26). Assessment of crop growth under modified center pivot irrigation systems using small unmanned aerial system based imaging techniques. 14th International Conference on Precision Agriculture, Montreal, Quebec.

11. Chandel, A. K., Khot, L. R., Molaei, B., Peters, R. T., Stockle, C. O., & Jacoby, P. W. (2020, July 12). *Actual evapotranspiration mapping of grapevines using UAS based high resolution imagery and METRIC energy balance model*. 2020 ASABE Annual International Virtual Meeting, Virtual.

12. Chandel, A. K., Khot, L. R., & Sallato, B. C. (2020). Towards rapid detection and mapping of powdery mildew in apple orchards. *2020 IEEE International Workshop on Metrology for Agriculture and Forestry (MetroAgriFor)*, 288–292.

13. Chandel, A. K., Khot, L. R., Stöckle, C. O., Peters, R. T., & Mantle, S. (2020). Spatiotemporal water use mapping of a commercial apple orchard using UAS based spectral imagery. *2020 IEEE International Workshop on Metrology for Agriculture and Forestry (MetroAgriFor)*, 268–272.

14. Chandel, A. K., Molaei, B., Khot, L. R., Peters, R. T., & Stockle, C. O. (2019, October 2). *High resolution geospatial mapping of actual evapotranspiration using small UAS based imagery for site specific irrigation management*. Water Smart Innovation Conference and Exposition, Las Vegas, NV.

15. Czarnecki, J. M., Linhoss, A. C., Hathcock, L. A., Ramirez-Avila, J. J., & Schauwecker, T. J. (2018, July 30). Assessing soil erosion with unmanned aerial vehicles for precision conservation. 73rd Soil and Water Conservation Society International Annual Conference, Albuquerque, NM.

16. de Castro, A. I., Maja, J. M., Owen, J., Robbins, J., & Peña, J. M. (2018). Experimental approach to detect water stress in ornamental plants using sUAS-imagery. *Autonomous Air*

and Ground Sensing Systems for Agricultural Optimization and Phenotyping III, *10664*, 106640N.

17. Diop, A., Sakho, M., Audebert, A., Mbaye, M., Sine, B., Faye, I., Balota, M., Hosington, D., & Roads, J. (2021, July 12). *High throughput phenotyping methods on peanuts fields*. The 53nd Am. Peanut Res. Ed. Soc., virtual.

18. Han, X., Thomasson, J. A., Bagnall, C., Pugh, N. A., Horne, D. W., Rooney, W. L., Malambo, L., Chang, A., Jung, J., & Cope, D. A. (2018). Calibrated plant height estimates with structure from motion from fixed-wing UAV images. *Autonomous Air and Ground Sensing Systems for Agricultural Optimization and Phenotyping III*, *10664*, 106640D.

19. Khot, L. R. (2020). Transitioning from precision to decision horticulture: technology landscape. *Acta Horticulturae*, 195–200. https://doi.org/10.17660/ActaHortic.2020.1279.29

20. Maja, J. M., Robbins, J., Fernandez, T., Chappel, M., & Owen, J. (2021, January 6). *Using RFID, Drones, and Bluetooth to improve plant inventory management*. Southeast Regional Fruit & Vegetable Conference.

21. McCraine, C. D., Samiappan, S., Prince Czarnecki, J. M., & Dodds, D. M. (2019). Plant density estimation and weeds mapping on row crops at emergence using low altitude UAS imagery. *Autonomous Air and Ground Sensing Systems for Agricultural Optimization and Phenotyping IV*, *11008*, 11008Y.

22. Molaei, B., Chandel, A. K., Peters, R. T., Khot, L. R., & Vargas, J. Q. (2020, July 12). *Crop lodging assessment in irrigated spearmint using low altitude high-resolution imagery*. 2020 ASABE Annual International Virtual Meeting, Virtual.

23. Oakes, J., & Balota, M. (2017). Distinguishing plant population and variety with UAV-derived vegetation indices. *Autonomous Air and Ground Sensing Systems for Agricultural Optimization and Phenotyping II*, *10218*, 102108G.

24. Oteng-Frimpong, R., Kassim, Y. B., Puozaa, D., Sie, E., Danquah, A., Akogo, D., Balota, M., & Burow, M. D. (2021, July 12). *Enhancing the efficiency in data collection in peanut through whole-plot data capture: the case of above ground biomass and foliar diseases*. The 53nd Am. Peanut Res. Ed. Soc., Virtual.

25. Prince Czarnecki, J. M., Wasson, L. L., Scholtes, A. B., Carver, S. M., & Irby, J. T. (2018, June 26). Soybean maturity stage estimation with unmanned aerial systems. 14th International Conference on Precision Agriculture, Montreal, Quebec.

26. Quirós, J., Martello, M., & Khot, L. R. (2018, June 26). Field grown apple nursery tree plant counting based on small uas imagery derived elevation maps. 14th International Conference on Precision Agriculture, Montreal, Quebec.

27. Sarkar, S., Oakes, J., Balota, M., Burrow, M., & Bennet, R. (2018a). *Deriving peanut Plant Height from Aerial Imagery and Digital Elevation Models*. 2018 APRES annual meeting, Williamsburg, VA.

28. Sarkar, S., Oakes, J., Balota, M., Burrow, M., & Bennet, R. (2018b). *Use of aerial imagery and digital elevation models for deriving plant height in peanuts' Sayantan Sarkar, Joseph Oakes*. ASA-CSSA international meeting, Baltimore, MD.

29. Shi, Y., Thomasson, J. A., Yang, C., Cope, D., & Sima, C. (2017). A case study of comparing radiometrically calibrated reflectance of an image mosaic from unmanned aerial system with that of a single image from manned aircraft over a same area. *Autonomous Air and Ground Sensing Systems for Agricultural Optimization and Phenotyping II*, *10218*, 75–80.

30. Sumner, Z., Varco, J. J., Czarnecki, J. M., & Fox, A. A. A. (2018, November 6). Multi-platform comparison of canopy reflectance on corn whole plant and leaf tissue nitrogen status and grain yield. ASA-CSSA international meeting, Baltimore, MD.

31. Temu, V., Hession, W., Sforza, P., & Wang, H. (2021, October 13). Enhanced Grazing Management Assessment Using Drone-Based Lidar Measurements. Joint International Grassland & Rangeland Congress, Karibu, Kenya.

32. Thomasson, J. A., Shi, Y., Sima, C., Yang, C., & Cope, D. A. (2017). Automated geographic registration and radiometric correction for UAV-based mosaics. *Autonomous Air and Ground Sensing Systems for Agricultural Optimization and Phenotyping II*, *10218*, 102180K.

33. Thomasson, J. A., Wang, T., Wang, X., Collett, R., Yang, C., & Nichols, R. L. (2018). Disease detection and mitigation in a cotton crop with UAV remote sensing. *Autonomous Air and Ground Sensing Systems for Agricultural Optimization and Phenotyping III*, *10664*, 106640L.

34. Young, S. N., & Smith, E. (2021, June 10). *Collaborative Aerial and Surface Vehicles for Water Quality Sensing in Aquatic Environments*. World Environmental and Water Resources Congress, Virtual.

Theses and Dissertations

1. Abdulai, G. (2021). *The response of beef cattle to disturbances from unmanned aerial vehicles (UAVs)* [Ph.D. Dissertation]. University of Kentucky.

2. Norman, D. (2021). *Linking remotely sensed landscape data to forage quality in an experimental grazing system* [M.S. Thesis]. Mississippi State University.

3. Sarkar, S. (2021). *Development of high-throughput phenotyping methods and evaluation of morphological and physiological characteristics of peanut in a sub-humid environment* [Ph.D. Dissertation]. Virginia Polytechnic Institute and State University.

Popular press/general audience

1. Chandel, A.K., Khot, L.R., Peters, R. T., Stöckle, C. O., & Mantle, S. 2021. High spatiotemporal apple crop water use mapping using drone imagery. Washington State University – Fruit Matters, August 2021.

2. Khot, L. R., Chandel, A. K., Peters, R. T., Stöckle, C. O., & Jacoby, P. 2021. Drone-based grapevine water use mapping. Washington State University - Viticulture and Enology Extension News, Spring 2021.

3. Robbins, J. & Maja, J. M. 2021. Make it count with drones. *Nursery Management*. Last accessed: 13 April 2021. https://www.nurserymag.com/article/drones-can-help-with-plant-inventory-management/

4. Robbins, J., Martin, D., Reynolds, B., & Maja, J. M. 2021, Aerial chemical application. *Nursery Management*. Last accessed: 16 March 2021. https://www.nurserymag.com/article/aerial-chemical-application/

5. Robbins, J. & Maja, J. M. 2021. Eyes in the skies. *Nursery Management*. Last accessed: 30 January 2021. https://www.nurserymag.com/article/drones-in-nursery-production/

6. Unger, D., Kulhavy, D., Hung, I., & Zhang, Y. 2019. Using a drone to create a user-controlled urban-forest orthomosaic. *The Forestry Source*, May, p. 15.

7. Khot, L. R. & Peters, R. T. 2018. Advances in UAS based imagery and its applications in irrigated agriculture. *Irrigation Today Magazine,* April, 2018. pp. 23-24.

8. Khot, L. R. 2018. Drone data for agriculture, *Good Fruit Grower Magazine,* http://www.goodfruit.com/khot-drone-data-for-agriculture/

Extension publications

1. Robbins, J., R. Rainey, J.M. Maja, A. Shew, and C. Weems. 2020. Planning for Financial Risks Associated with Using sUAS in Agriculture. https://www.uaex.edu/publications/pdf/FSA6153.pdf Sept. 25, 2020

2. Hawkins, E. and J. P. Fulton, J. P. (Eds.) 2020. 2019 eFields Report. College of Food, Agricultural and Environmental Sciences, The Ohio State University.

3. Khot, L. R., G.-A. Hoheisel, and J. Zhou. 2019. Washington State University Extension FS321 Unmanned aerial systems in agriculture: Part 3 (Mid-sized UAS).

4. Khot, L. R. 2017. Washington State University Extension FS285E Unmanned aerial systems in agriculture: Part 2 (Sensors).

5. Khot, L. R., Q. Zhang, M. Karkee, S. Sankaran, K. Lewis. 2016. Washington State University Extension FS194E Unmanned aerial systems in agriculture: Part 1 (systems).

6. Robbins, J. and J.M. Maja. 2017. Features to Consider When Purchasing a Small Unmanned Aircraft System (sUAS). University of Arkansas Extension FSA6151. https://www.uaex.uada.edu/publications/pdf/FSA-6151.pdf

7. Robbins, J., J. Maja, L. Purcell, T. Spurlock, S. Gadberry, and W. Woldt. 2017. Pilot Certification and Aircraft Registration for Non-Hobby Users of Small Unmanned Aircraft Systems (sUAS) University of Arkansas Extension FSA6150 https://www.uaex.uada.edu/publications/pdf/FSA-6150.pdf

8. Robbins, J. and J.M. Maja. 2017. Significant timeline events for small unmanned aircraft systems (sUAS) 1926-2017. University of Arkansas Extension MP543. https://www.uaex.uada.edu/publications/pdf/MP543.pdf

Digital media and tools

1. Ahmad, A., D. Saraswat, A. Gamal, and G. S. Johal. 2021. CD&S Dataset: Handheld Imagery Dataset Acquired Under Field Conditions for Corn Disease Identification and Severity Estimation. [data paper] https://export.arxiv.org/abs/2110.12084

2. Czarnecki, J., S. Samiappan, L. L. Wasson, L. and C. D. McCraine. 2021. *Mississippi Sky Conditions*. Mississippi State University Libraries Institutional Repository. [dataset] https://scholarsjunction.msstate.edu/cals-publications/27/

3. Robbins, J., R. Rainey, J.M. Maja, A. Shew, and C. Weems. 2020. Planning for Financial Risks Associated with Using sUAS in Agriculture. University of Arkansas Extension Service. https://www.uaex.edu/publications/pdf/FSA6153.pdf

4. Kulhavy, D. L., D. Unger, I. Hung, and Y. Zhang. 2020. Using unmanned aerial systems in teaching, research and service. Forest Innovation Reviews, (FIRz), U. S. Endowment for Forestry and Communities, Athens, GA. [presentation] https://www.youtube.com/watch?v=T8Z79AgluNE

5. Saraswat, D., D. E. Martin, L. R. Khot and S. Murray. 2018. UAS User Log. Purdue University. [tool] https://data.nal.usda.gov/dataset/uas-user-log

6. Unger, D., D. Kulhavy, I. Hung, and Y. Zhang. 2017. Urban Tree Health Assessment. [training video] https://www.youtube.com/watch?v=-AjlmwxYqns&feature=youtu.be

7. Fulton, J.P., (nd). Digital Ag. The Ohio State University College of Food, Agriculture, and Environmental Sciences. [website] https://digitalag.osu.edu/ag-sensing

8. Robbins, J., R. Rumley, M. Gu, and J. M. Maja. (nd). Greenviion sUAS. [website] https://greenviion.wordpress.com/suav/

Professional and service presentations and reports

1. Farina, M., J. Watts, S. Powell, N. Barnes, and H. Webb. 2020. High-resolution, drone-based methane flux upscaling analysis. Woods Hole Research Center, Falmouth, MA, January 2020. Oral presentation.

2. Farina, M, J. Watts, and S. Powell. 2020. Spatio-temporal scaling of carbon fluxes in Arctic and boreal regions. Department of Land Resources and Environmental Sciences, Montana State University, Bozeman MT, April 2020. Oral presentation.

3. Farina, M, J. Watts, and S. Powell. 2020. Spatial and temporal trends in Arctic-boreal carbon fluxes. Department of Land Resources and Environmental Sciences Colloquium, Montana State University, Bozeman MT, April 2020. Poster presentation.

4. Farina, M, J. Watts, S. Powell, J. Kimball, J. Du, Z. Liu, Y. Yi, and S. Natali. 2020. Spatial and temporal trends in Arctic-boreal carbon fluxes. NASA Arctic Boreal Vulnerability Experiment (ABoVE) Science Team Meeting 6, June 2020. Poster presentation.

5. Powell, S.L. Drones for remote sensing in Agriculture. 2020. Crop and Pest Management School, Department of Plant Sciences and Plant Pathology, Montana State University. Bozeman, MT, January, 2020. Oral presentation. *Invited*

6. Grutter, B., W .C. Hession, R. Grisso, L. Lehmann, and D. Morgan. 2017. Best Management Practices Utilizing Unmanned Aircraft Vehicles in Aerial Spraying. Final Project Report submitted to E.I. Dupont De Nemours and Co., Wilmington, DE.

7. Sarkar, S., J. Oakes, A. Sadeghpour, and M. Balota. 2018. High-Throughput Phenotyping of peanuts and biomass sorghum using remote sensing and computer vision techniques. 2018 GIS and Remote Sensing Symposium, Blacksburg, VA.

Associated Grants

1. Scaling-up sustainable integrated weed management solutions to US field crop producers. USDA-NRCS Conservation Innovation Grants (On-Farm), Bagavathiannan, PI ($2,370,000). 2021-2025. Bagavathiannan, M. (PI).

2. Using 3-D characterization and mapping of cover crops and weeds to fight herbicide resistant weeds and avoid reverting back to tillage-based weed control. USDA-NRCS Conservation Innovation Grants (Classic), ($750,000). 2021-2025. Bagavathiannan, M. (Co-PI).

3. Building geo-spatial databases to improve the precision of cover crops as an integrated weed management tool. USDA-NIFA Crop Protection and Pest Management Program. ($325,000). 2020-2023. Bagavathiannan, M. (Co-PI).

4. Aerial and ground phenotyping analytical tool development for plant breeders using the maize G2F project. USDA-NIFA Plant Breeding for Agricultural Production. ($490,000). 2017-2021. Murray, S. (PI).

5. NRI: INT: Development of a customizable fleet of autonomous co-robots for advancing aquaculture production. USDA-NIFA NRI. ($1,200,000). 2020 - 2024. Young, S. (Co-PI), Hall, S. (Co-PI).

6. Improved short season cowpeas and development of unmanned aerial system (UAS) and other phenotyping tools to advance pulse breeding. USDA ARS Pulse Crop Health Initiative ($178,595) 2019-2021. Murray, S. (PI).

7. High Intensity Phenotyping Sites for maize G2F and wheat. USDA-NIFA High Intensity Phenotyping Sites. ($3,000,000) 2020-2024. Murray, S. (Co-PI), Thomasson, J. A. (Co-PI).

8. Unmanned Aerial System Enabled Phenomic Selection to Develop Improved Southern Maize Hybrids. USDA-NIFA Plant Breeding. ($500,000) Murray, S. (PI).

9. Evaluation of Energycane for Bioenergy and Sustainable Agricultural Systems (EC-BioSALTS). Department of Energy. ($2,192,530) 2021. Singh, A. (Co-PI).

10. Agricultural AI for Transforming Workforce and Decision Support (AgAID). NSF/USDA-NIFA AI Institute. ($20M) 2021-2025. Khot, L. R. (Co-PI).

11. Field-specific weather-driven automated frost mitigation of specialty crops. NSF/USDA-NIFA Cyber Physical Systems. ($1,009,496). 2021-2024. Khot, L. R. (PI).

12. PMU: Technology for trade: Improving water use and allocation efficiency in agriculture and beyond. USDA-NIFA ($4,966,223) 2018-2023. Khot, L. R. (Co-PI).

13. Unmanned Aircraft System for Atmospheric Physics. NSF RII Track-2 ($5,995,869). Sama, M. P. (Co-PI).

14. Enhancing accessibility, reliability, and validation of actionable information from unmanned aerial vehicle image data. USDA–NIFA. ($473,430) 2018-2020. Czarnecki, J. (PI), Thomasson, J. A. Thomasson (Co-PI), Chowdhary, G. (Co-PI).

15. LIDAR and Photogrammetry to Map Alfalfa Yield and Quality using Unmanned Aircraft System. USDA-NIFA Alfalfa and Forage Research Program. ($250,000) 2016-2019. Sama, M. P. (Co-PI), Jackson, J. J. (Co-PI).

16. NRI: INT: Autonomous Unmanned Aerial Robots for Livestock Health Monitoring. USDA-NIFA National Robotics Initiative. ($899,907) 2017-2020. Sama, M. P. (Co-PI), Jackson, J. J. (Co-PI).

17. RFID and Beyond: Using RFID, Drones, and BLE to improve plant Inventory Management. Horticultural Research Institute. ($35,000) Robbins, J. (Co-PI), Maja, J. M. (Co-PI).

18. Enabling a Citizen Science Contribution to Meteorology Using Small Unmanned Aircraft Systems. NASA KY Space Grant Consortium. ($40,000) 2019. Sama, M. P. (Co-PI), Jackson, J. J. (Co-PI).

19. Smart Orchards. Washington Tree Fruit Research Commission-Technology. ($180,000) 2020-2023. Khot, L. R. (Co-PI).

20. Linking remote-sensing landscape data to forage quality in an experimental grazing system. Mississippi Agricultural and Forestry Experiment Station Strategic Research Initiative. ($99,500) 2019-2020. Street, G. M., (PI), Czarnecki, J. M. (Co-PI).

21. Improving the operational and economic opportunities for Unmanned Aerial Systems in Mississippi agriculture. Mississippi Agricultural and Forestry Experiment Station Strategic Research Initiative. ($28,696) 2019. Czarnecki, J. (PI).

22. Assessing soil erosion with unmanned aerial vehicles for precision conservation. Mississippi Agricultural and Forestry Experiment Station Strategic Research Initiative. ($51,278) 2017-2018. Czarnecki, J. (PI).

23. Mapping and inventorying floristic biological, functional, and structural diversity across the DeLuca Ranch using high-resolution airborne hyperspectral imaging and LiDAR. UF/IFAS Internal Jumpstart Grant. ($75,000). 2022. Singh, A. (PI).

24. High-Throughput Soil Sampling System. VPR Minor Equipment Competition. ($39,336) 2018. Sama, M. P. (PI)

25. Survey Point Installation for Accuracy Validation of Unmanned Aerial Systems (UAS) of a Phantom 4 RTK Flight and Ground Control Points. Office of Research and Sponsored Programs, Stephen F. Austin State University. ($6,000) 2021. Hung, I. (PI), Zhang, Y. (Co-PI), Kulhavy, D. (Co-PI), and Unger, D. Co-PI).

26. Accuracy Assessment of Drone Derived Orthomosaics of the SFA Walter C. Todd Agricultural Research Center. Office of Research and Sponsored Programs, Stephen F. Austin State University. ($1,500) 2021. Zhang, Y. (PI), Kulhavy, D. (Co-PI), Hung, I. (Co-PI), and Unger, D. (Co-PI).

27. Assessing Snow and Ice Damage to Southern Pine Tree using a DJI Mavic Mini 2 Drone. Office of Research and Sponsored Programs, Stephen F. Austin State University. ($2,448) 2021. Unger, D. (PI), Hung, I. (Co-PI), Zhang, Y. (Co-PI), and Kulhavy, D. (Co-PI).

28. 3D Printing Based on UAS (Drone) Images. Office of Research and Sponsored Programs, Stephen F. Austin State University. ($1,499) 2019. Zhang, Y. (PI), Kulhavy, D. (Co-PI), Hung, I. (Co-PI), and Unger, D. (Co-PI).

29. Using Fixed Wing Drone Acquired Data to Map Giant Salvinia. Hydrex Environmental Data Grant. ($2,000) 2018. Hung, I. (PI), Zhang, Y. (Co-PI), Kulhavy, D. (Co-PI), and Unger, D. Co-PI).

30. Mentored Undergraduate Scholarship. Stephen F. Austin State University Faculty Development Grant. ($3,000) 2016. Unger, D. (PI).

Unfunded Proposals submitted through S-1069 collaborations

1. The Spatial, Temporal, and Spectral Parameters Required for UAV Agricultural Applications. 2017. Submitted to USDA-NIFA. Freeland, R.S. (PI), Price, R. P. (Co-PI), Richardson, R. (Co-PI).

2. Unmanned aerial systems in natural resources, toy or tool? An objective approach. 2017. Submitted to USDA-NIFA. Wasson, L. L. (PI), Czarnecki, J. (Co-PI), Brodbeck, C. (Co-PI), Buschermole, M. (Co-PI), Price, R. (Co-PI), Spurlock, T. (Co-PI).