**UAVs in Multi-Disciplinary Agricultural Research and Outreach: Cutting-Edge Technology for Real World Challenges**

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The internship will support researchers and extension professionals utilizing drone technology to develop innovative management strategies that allow producers to optimize production, reduce costs, and protect the environment. The team will utilize the Unmanned Aerial Vehicles (drone) around two primary Research Foci in regard to challenging issues in Western Colorado (Gunnison and Mesa Counties), such as the need for enhanced crop production systems, innovative sustainable agriculture and food systems, increasing resilience to climate change, protection of environmental resources, and efficient use of water resources. The value proposition of this project is to expand the capability and influence of CSU, by equipping our Western Colorado units to engage in UAV-enabled research and training projects that are disadvantaged by the lack of training in this technology. The team will work to develop expertise, training and application of drone imagery to provide farmers with immediate feedback on crop health, water stress, and pest pressure.

A central premise of this proposal is that without advancement in the use of UAV technology, the College of Agriculture cannot effectively contribute to the statewide and worldwide goals of sustainable, regenerative and profitable agriculture, for which this technology is becoming indispensable. The College of Agriculture specifically states that agri-tech innovations and applications will be integral to its 2018-2025 Strategic Plan, which aims for actionable research findings that support the decision processes of agricultural producers, agribusinesses, scientists and consumers. The dire need for this technology is evident from the slow pace of acquisition of UAV technology at CSU, compared with other major universities that focus on agriculture innovation, especially at our off-campus units, such as the Agricultural Experiment Station systems.

The intern will learn data collection techniques using field instrumentation for collecting information on assessing water consumptive use, crop stress patterns, pest and week pressures, as well as other signature issues relating to precision farming with innovative technology. The student will likely be using one of the better technologies available, such as the fixed-wing UAV manufactured by Parrot (https://www.parrot.com/business-solutions-us/agriculture); multi-spectral camera by DJI (<https://www.dji.com/p4-multispectral>).

*Priority may be given to students who are first-generation scholars and/or are Pell-eligible.*

There are travel funds available for the project (use of personal vehicle with reimbursable mileage), but student housing is not available at the CSU Western Colorado campus. An arrangement does exist with Colorado Mesa University, for example, and funding may be available to help offset the cost of housing.