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Improving Profitability of Small and Medium Sized Farms Though Economic Optimization of Wheel-Line Irrigation

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Recommended Citation

Data Management Plan

Improving Profitability of Small and Medium Sized Farms Though Economic Optimization of Wheel-Line Irrigation

Data Management Plan
Data collected during the project will be managed according to the following plan.

Expected Data
The project will include the collection and generation of both digital and non-digital data. Field data collection will be conducted (as much as reasonably possible) on standardized field logs designed for the project. All field and laboratory notes for the project will be scanned and stored digitally in a timely fashion. Hard copies of all datasheets will be maintained for the duration of the project. Field and laboratory data will be digitized (data entry) in a timely manner to minimize the risk of data loss. Digital data will also be collected using dataloggers and sensor systems. Additional digital data products will be generated as the analyses are conducted.

Data Format
The digital/digitized data will be stored in the following primary formats:

- All data sheet scans will be stored in PDF format.
- Any laboratory results will be stored in PDF of Microsoft Excel spreadsheets.
- All data will be entered into Excel spreadsheets or comma separated variable (CSV) files.
- All other digital data will be stored in Excel, CSV, or ASCII (text) files. These formats are commonly used by the scientific community and are actively supported.
- Digital data collected by sensor-datalogger systems will be converted into one of the above formats to prevent data loss in the future. Datafiles in the original file formats will also be preserved. Data will be retrieved from dataloggers at regular intervals and promptly uploaded to a secure data storage platform.
- Digital data that is not appropriate to store in the above formats (e.g., geospatial data, imagery, photographs) will be stored in appropriate, commonly used, formats (shapefiles, geodatabases, jpeg, tiff, geotiff) formats.
- Survey data will be collected electronically (web-based). Results will be exported into a spreadsheet. Personal identification will be strictly protected and the data will only be used as approved by the Utah State University (USU) Internal Review Board (IRB).

Appropriate metadata will be maintained along with the original datasets. These include field-logs and explanatory notes. Where possible, notes will be included in the same files as the data.

Data Management Plan

Data Storage
All project results will be maintained on a secure, shared, cloud-backed folder using Box (Redwood City, CA) services. Utah State University has approved Box for storage of all digital data at the University, including sensitive data (https://it.usu.edu/data-storage). The PI and Co-PIs will each have full permissions in this folder, while student permissions may include some restrictions. Box data storage will automatically facilitate file backup to avoid data loss. It is expected that the project will generate less than about 500 GB total of data, including photographs, and any geospatial datasets.

Data Sharing, Protection, and Public Access
The Box storage will enable the sharing and access of files within the research group. Any or all data folders stored on Box can be shared with the public with a download-only permission, preventing any accidental corruption of data. Any confidential data shared by industry collaborators will not be made public, unless permission is granted. Survey results will only be made public in a manner approved by the USU IRB, which will include protection of sensitive information.

At the completion of the project, and as necessary for publications before completion, all original and final processed data will be stored at DigitalCommons@USU. DigitalCommons is a repository managed by USU Libraries, which uses Dublin Core metadata standards. If required by academic journals, some of the data may also be made public using a service other than DigitalCommons. Data access may be restricted until academic journal articles are accepted by the respective publishers.

Roles, Responsibilities, and Reporting
Data management plan implementation will be the direct responsibility of the PI Barker with full participation by Co-PIs Larsen and Yost. Each PI or Co-PI will be directly responsible for ensuring that any students reporting to that individual properly manage project data and that data are stored in an organized manner on Box. PI Barker will regularly follow up on data management plan implementation with the project team.

Upon the completion of employment by any of the students involved with the project, the PI or Co-PI will ensure that all data collected or produced by that student has been appropriately stored in the Box folder. Should the PI or either of the Co-PIs leave the project or USU employment, the respective responsibilities will fall on the remaining PI/Co-PIs and any replacement of the leaving person. At the termination of the project, the PI will ensure that all original and final data products are stored in the DigitalCommons@USU system, where they will be maintained in perpetuity.

Data management plan compliance and a description of data collected, stored, and made public (including publications) will be reported by the PI in the annual and final project reports.