Data Management

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TECH TOOLSHED

GOAL

The overall goal of data management of farming information is to capture, organize and archive critical field data for modern farm planning, decision making and cropping system strategies during the growing season.

VALUE STATEMENT

Recordkeeping is essential to operating a successful and profitable farming business. Managing records as farm data requires more complex management solutions. Farmers should consider the upfront costs and the long-term benefits of data management in order to create a grower-specific strategy to maximize returns. The best way to turn decision into action is to do an inventory of what equipment or systems are needed on the farm, and identify partners including local dealers and service providers who will contribute to the farm's success.

Some best management practices for data management can be broken down into data mobility, organization, tools and management systems as part of an integrated management plan that growers should consider when making partnership and implementation decisions.
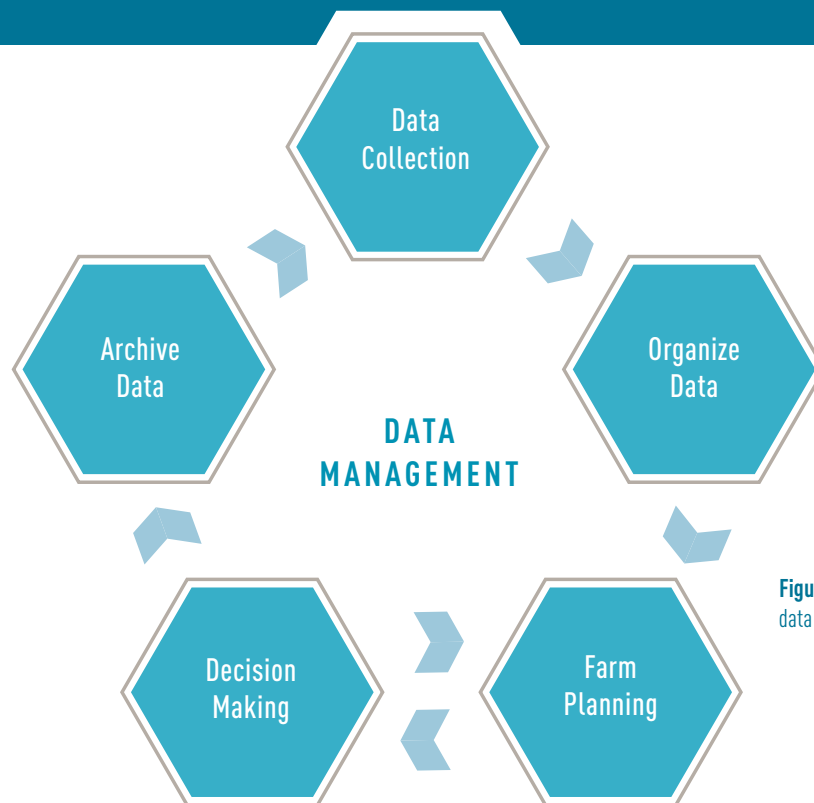

Figure 1. Visualize your data management.

Data Mobility

Farm data is generated from multiple sources, including farm business records and machine-created data. Moving data from point of origination to point of use in a timely manner helps producers leverage data to create tangible increases in economic, environmental and social sustainability. Farm data may also flow to and from trusted third parties (such as your sales agronomist, precision ag specialist or independent consultant) to maximize value for the grower. Evolutions in technology have established physical memory cards and wireless data transfer as two primary methods of data transfer. Handling data transfer with care is recommended regardless of the method employed. A good rule of thumb is to consider initial export from a device as the only copy of the data.

Data Organization

Data is commonly organized by field operation throughout the growing season. Most farm data that is captured and organized includes a spatial (GPS location) and temporal (date and time) reference that accompany the data file. Across the different software platforms and service providers, the data is tabulated and can be viewed in the form of field maps. The goal is organizing the data into a format where data-informed decisions can be made regarding field and farm efficiency and productivity.

Figure 2. Careful display management is important for organizing and maintaining quality farm data.
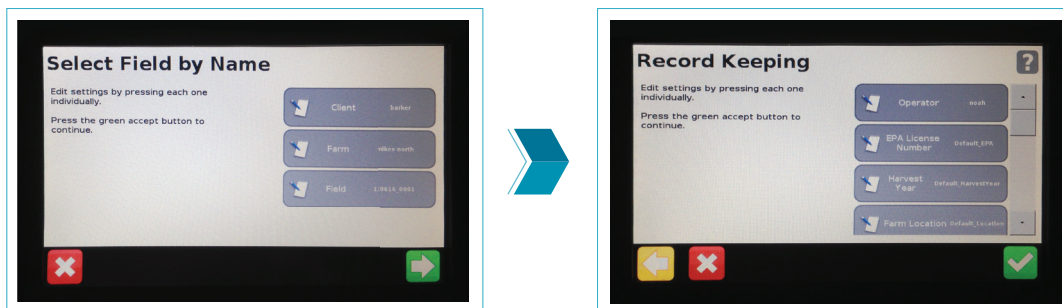
Data Tools

Multiple software platforms and smartphone apps are available with a range of features designed to inform management decisions that are driven by data collected on the farm. The end-user should analyze their needs and choose the appropriate tools. Interoperability can be an issue between data sources and should be considered when selecting a hardware and software solution on the farm. Some common data tools are machine-based (third-party sensors and bolt-on devices that collect data on a planter or toolbar as you travel through the field), mobile devices and smartphone apps, field-deployable devices (stations for weather monitoring or plant sensing to optimize nutrient management) and the cloud (farm data sources too large for traditional storage and management).

Farm Management Information System (FMIS)

There is no shortage of product offerings on the market with FMIS which incorporate hardware, software and networks. Some examples include Climate FieldView, Dupont Pioneer Encirca, FarmersEdge Smart Solutions, John Deere MyJohnDeere, Ag Leader SMS and Trimble Ag Software. Selecting a FMIS can be a challenging process for any grower. The best FMIS is one you like to use and use regularly. A good first step is to ask the following question:

What do I want my FMIS to do?

1. Find efficiencies on the farm.

2. Help visualize field and farm data through mapping.

3. Assist with farm planning and management plans.

FMIS platforms include desktop and cloud service systems. There are benefits and limitations for each of these platforms, including:

FMIS Considerations

	BENEFITS	LIMITATIONS
Desktop Platform	Custom reports, greater analytics, data privacy controls.	Periodic software updates, training to be proficient, reduced data mobility.
Cloud Service	Easy to use, greater data mobility, data sharing.	Continually changing, interoperability, lack of long-term data archiving.

For more information and links to additional resources, visit www.unitedsoybean.org/techtoolshed

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