

A Dialog on Agricultural Data Ownership and Value Creation

November 13, 2019 | San Antonio, TX

Tri-Societies Annual Meeting: Hosted by the Foundation for Food & Agriculture Research, The Soil Health Partnership and Conservation Technology Information Center

Introduction and Context Setting

Digital technologies are disrupting almost every industry – agriculture being no exception. We are in the midst of a Fourth Industrial Revolution, which has been characterized as *a fusion of technologies blurring the lines between the physical, digital and biological spheres (Schwab 2016)*. Applications in agriculture for digital technologies aid producers in accelerating the adoption of practices and technology to yield valued added benefits to the farming operation (Darr 2015).



Although still in its early stages, the evolution of digital agriculture is occurring at an exponential pace. New technologies enable more precise practices and tools to collect large amounts of information from various sources and time scales. With improved precision and data collection, farmers can increase yields and refine operation management and optimization strategies. However, there are several issues concerning data sharing, security and ownership.

Agriculture is becoming increasingly data-dependent. Data ownership is critical to providing timely recommendations to farmers and ranchers that help them improve decision making, increase profitability and steward their land. Additionally, climate change amplifies the need for timely information as shifts in precipitation and temperature patterns impact decision making year-to-year.

Through this dialogue, the Foundation for Food & Agriculture Research (FFAR) is exploring the following series of questions to create a more focused path for agriculture data development:

1. How to create new value streams with data?
2. How can we ensure that farmers feel more secure in the use of their data, empower ownership of data and develop new value streams?
3. How can we address the lack of consistent and comprehensive data security policies?
4. How do we align data across major industry spaces without a plan or strategy to coordinate?
5. How can we leverage existing models in other fields that could serve as foundational?
6. How to give farmers and ranchers full access and control of their own data?

Understanding the complexities of these questions, FFAR recognized the importance of exploring the research gaps surrounding data ownership and data value creation.

FFAR, along with the Soil Health Partnership (SHP) and Conservation Technology Information Center (CTIC), hosted the first of two interactive dialogues to discuss data ownership and valuation-challenges and opportunities. This report summarizes the outcomes of the first dialogue held at the Tri-Societies annual meeting in San Antonio, TX on November 13, 2019.

Objective of the Convening Event

This dialogue convened experts and key stakeholders, both inside and outside of the agricultural sector, to discuss challenges and opportunities around agricultural data ownership, data value creation and effective management strategies. The dialogue addressed critical research gaps to establish a new framework that addresses farmer data ownership needs and usage – ultimately leading to increased value for farmers and other stakeholders.

The ultimate goal of this and subsequent conversations: To develop consistent policies that support stakeholders, improve our ability to utilize data for research and decision-making purposes that go back to the farmers and others and to ensure that the principles are such that we can easily work with each other across sectors and geospatial boundaries. These principles must also be flexible in a space that continues to evolve.

The event included a variety of speakers and attendees representing key stakeholder groups, from farmers and academics to federal and industry partners; both inside and outside of agriculture. The diversity of participants allowed this dialogue to leverage learnings from other sectors that have experience with data ownership and data value creation.

Agenda

- 8:00 – 10:00am** **Welcome! Introductions and Context Setting**
Sally Rockey, Executive Director, FFAR
Dorn Cox, OpenTEAM PI and Wolfe's Neck Research
Director
Mike Komp, Executive Director, CTIC
- The Value of Clarifying Agricultural Data Ownership**
Tom Dye, ARVA
- Breakout Group Discussion:** Defining Data Privacy vs
Data Ownership
- 10:00am – 12:00pm** **Lightning Talks: Moderator: Dorn Cox**
Speakers: Maria Bowman, Cynthia Parr, Kevin Silverstien,
Bill Salas, Aaron Ault
- Lightning Talks: Moderator: LaKisha Odom**
Speakers: Chris Seifert, Rex Raymond, Dan Harburg and AJ
Kumar, Caroline Wade, Aldyen Donnelly
- 12:00 – 1:00pm** **Lunch**
- 1:00 – 3:00pm** **Panel Discussion:** Lessons and thoughts from cross-
industry experts within and outside of Agriculture
Moderator: Mike Komp
Speakers: James Wilgenbusch, Francesca Casalini, Pasha
Sternberg
- 3:00 – 4:00pm** **Breakout Group Discussion:** Blue Sky Thinking
Moderators: LaKisha Odom, Dorn Cox
- 4:00 – 5:00pm** **Report Out and Next Steps**

Group Discussions

Breakout Group Discussion - How you define data privacy versus ownership?

This breakout session focused on identifying key barriers to data collection, modeling and adoption in the field within the agricultural data world.

Lightning Talks - Bringing together diverse stakeholders to present their work and efforts, as well as highlight challenges in Data ownership, management and transactions.

1. Maria Bowman, **Soil Health Partnership**
2. Cynthia Parr, **National Agriculture Library**
3. Kevin Silverstien, **University of Minnesota GEMS**
4. Bill Salas, **Dagan**
5. Aaron Ault, **Purdue / OATS**
6. Chris Seifert, **The Granular Group**
7. Rex Raymond, **Meridien Institute**
8. Dan Harburg and AJ Kumar, **Indigo Ag**
9. Caroline Wade, **Ecosystem Services Market Research Consortium (ESMRC)**
10. Aldyen Donnelly, **Nori**



Panel Discussion - Lessons and thoughts from cross-industry experts within and outside of agriculture

The panel discussion brought together three experts in their respective industries: James Wilgenbusch of the University of Minnesota to represent academic research, Francesca Casalini of the Organisation for Economic Co-operation and Development (OECD) to represent international policy and Pasha Sternberg of Polsinelli Law to represent the legal side of privacy issues.

Breakout Group Discussion - Blue Sky Thinking: What would a set of farmer- focused data principles look like and what steps need to be taken to implement these principles?

This conversation resulted in three high level possible next steps:

- Coordination between farmers, researchers, government and industry stakeholders. It is imperative that there is shared understanding of articulated needs and considerations.

- Development of a map/assessment of the current resources and tools already available; sharing those pathways with the larger community.
- Creation of a guide that pairs technical standards with aspirational goals.

Outcomes and Next Steps

This event represented a call to action to all stakeholders involved, from academics to farmers and ranchers. There is an inherent value proposition in participation with data sharing and a role to play for each group.

A clear research gap has emerged: the need to better understand the various data use cases and to more clearly define data ownership in each case. For example, individual farmers in different geographical regions have varying needs for recommendations of field management practices. These recommendations are made based on many factors, such as climate conditions, soil quality in the area, consumer demand for certain products, or the perceived return on investment based on the amount of change that adoption of those recommendations would require. As we make these recommendations, there is also a need for consistent protocols for data collection to improve modeling that can then improve the regional recommendations. Based on the need for improved data collection and sharing and how it is inherently linked to improved modeling and site-specific recommendations, it is imperative that a consistent data ownership process be created and consistently shared.

There is also a need to recognize gaps in culture, as well as gaps or ambiguity in legal guidelines that present barriers to the data creators (e.g., farmers) and those utilizing the data to develop models and decision support tools. Building on the terminology at the farm level and using simple language can help engage farmers in their day to day practices. Creating a basic, easily accessible lexicon and set of principles for privacy standards to use throughout the supply chain would be beneficial to all stakeholders involved.

Regulation has not yet caught up with the pace of technology. Currently, there are no consistent or comprehensive security and privacy data protocols in agriculture, leaving farmers to negotiate with ag-tech companies on their own terms. This often results in a lack of investing in technology by numerous growers. A key next step towards creating a model for success in the United States involves cataloging international standards that have been effective. However, many of the current data ownership and privacy guidelines revolve



around personal use. There is a need to figure out where the boundary lies between the personal and the agricultural entity. Evaluating and improving upon current systems is a good starting point.

As agricultural data usage is explored, it is also important to consider how privacy and protection play a role in what farmers are willing to share. On September 24 – 25, 2020, this dialogue will continue at an event hosted by FFAR, the University of Minnesota's GEMS program and the Institute for Research in Statistics and its Applications (IRSA). The discussion will revolve around how agricultural data is transformed into information and decision-making through novel approaches for data analysis, while managing and maintaining the privacy of the farmers and consumers whose data are being utilized. The next event will be primarily focused on a broad view of big and small data management and use across diverse needs and stakeholders. Together, these two events address the two critical elements of ag data - ensuring farmers' data is secure and fully leveraging the ability to analyze and use the data through comprehensive and coordinated agricultural data strategy.



UNLOCKING THE AGRICULTURAL DATA REVOLUTION

From small to big data, from open to private access: a discussion on how we can overcome the challenges facing agricultural data management and usage to deliver the most value to farmers and beyond.

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2020**

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FFAR Mission

As a major component of our research, we conduct science that results in thriving farms, environmental resilience and well-being.

We build public-private partnerships to fund audacious research addressing the biggest challenges in food and agriculture.

Our world is changing rapidly. The global population is increasing, climate change is causing extreme weather events and natural resources are diminishing. FFAR brings together leading experts to identify and investigate the researchable questions whose answers have the potential to enhance the economic and environmental resilience of our food supply.

FFAR Vision

We envision a world in which ever innovating and collaborative science provides every person access to affordable, nutritious food grown on thriving farms.

We believe that this common goal can be met by working together with our research community of nonprofits, foundations, governments, individual researchers and producers, colleges and universities and companies who can support and implement the science we need. Our research aims to achieve this vision by producing food in an economically and environmentally sustainable way. Part of our role in this collaborative effort is to convene individuals and groups who can pool creative ideas, expertise and resources so that we can make a difference, together.

Partnership

The Soil Health Partnership (SHP) is a farmer-led initiative that improves soil health to promote environmental resiliency, grow healthy crops and help farmers thrive. Administered by the National Corn Growers Association (NCGA), the partnership has more than 220 working farms enrolled in 16 states. SHP's mission is to utilize science and data to partner with farmers who are adopting conservation agricultural practices that improve the economic and environmental sustainability of the farm.

The Mission and Vision of The Soil Health

The Mission and Vision of the Conservation Technology Information Center

The Conservation Technology Information Center (CTIC) connects people from across agriculture and the conservation community to encourage greater adoption of farming systems that are economically and environmentally sustainable. CTIC links farms, universities, government and business in projects that explore and champion conservation agriculture.

Join the Conversation

FFAR looks forward to continuing to build strong public-private partnerships within the agriculture community and welcomes your input. Please feel free to contact Dr. LaKisha Odom at lodom@foundationfar.org to learn more about how you can engage with FFAR.

To stay up to date on future funding opportunities, please visit foundationfar.org



Many Thanks to the Steering Committee members for their hard work and support