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Hearing: Technology in Agriculture: Data-Driven Farming

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Chairman and Members of the Subcommittee:

Thank you for the invitation, today, to share my ideas about how to improve the collection, standardization and interoperability of agricultural data for the benefit of every American.

My name is Jason Tatge, co-founder, president and CEO of Farmobile — a relatively small agtech startup company, from Kansas, with a creative business model that turns our farmer customers data into a monetizable commodity and shares the revenue with the farmers. We recently celebrated our four-year anniversary and employ over 40 people with plans to add at least 20 more over the next 12 months. Farmobile offers a "data as a service" subscription that properly aligns our company's future success with our farmers' success. Practically speaking, we help farmers to collect and organize their data so they can use it to better manage their own operations, share their collected data with their trusted partners and/or sell their data to interested third parties, the same way musicians can sell their music.

I've been on over 200 farms in the Midwest in the last few years and am completely amazed by how ridiculously awesome these people are at growing our food. These folks are the "rock stars" of global agriculture.

One of the most common topics we discuss when on the farm is data ownership. Many are confused over how we've gotten to this current place or when data ownership even become a question They are confused about who has access to their data and what they are doing with it. All have an expressed interest in being able to establish a value for the data they generate. As one farmer, David Seba from Cleveland, Missouri told me, "Big ag has been collecting our data for so long, that there's this attitude that the way we farm carries no value. Well, it does. For farmers, the field is our business and the way we manage it is our formula for success. So, why is it okay for these companies to claim the data as theirs and then sell it without our knowledge?"

At Farmobile we are proud to be working alongside some of the most innovative farmers in the world, and we are passionate about providing these farmers the opportunity to establish ownership and directly profit from the data generated from their field activities, if they choose to sell licenses to their data.

Introduction

Whether you represent the 2 percent of the U.S. population who farm or the non-farm constituents who — like all of us — eat, farm data will become a digital currency that impacts both farmers and food buyers. Today, I'll share my thoughts about the state of the industry, and the needs, risks and opportunities we have.

Data and analytics are disrupting and changing most industries. From grocery shopping to political campaigns, the world is forever changed by data. Farming is no different, although I'd suggest we are a few years behind other industries when it comes to data collection. That's changing fast, and we have a lot to learn from other industries that have already made the move from analog to digital, like healthcare.

A big part of farming today is being able to manage a large mixed fleet of equipment. Real-time data connectivity empowers farmers to remotely manage their logistics like never before by using any internet connected device. While adoption of precision agriculture technologies has been on the rise for years, now that it's available in real-time, adoption has accelerated because farmers quickly "see" the value of data.

Real-time data is the “game changer” for the future of farming because of the ability to gain insights and react “right now” during the season.This is the foundational driver to improve yields, lower input costs, strengthen stewardship and pave the way for cutting-edge programs like yield guarantees that enable seed and chemical companies to “share the performance risks” associated with their recommended products.

Big ag companies certainly agree that the industry is going digital. Look no further than public statements made by ag business giants framing this opportunity for their shareholders. They absolutely know it will benefit them to own the digital content coming out of the farmers’ fields.

But this comes with a cost to the farmers, not only do these big companies expect to get the data for free, but they also create “silos” for the data and make it very difficult to get that data back out from their systems.This stifles competition and customer choice in an already dramatically shrinking landscape of agricultural giants, whose recent mergers have reduced the big six to the big four.

Farmers are just beginning to understand that their data has value outside the perimeter of their operations, and that data ownership and a neutral digital strategy is necessary to be competitive today. Because of this, some farmers are starting to ask tough questions about data: Who owns it? How will it be used? How do I extract maximum value from it? And, most importantly, how do I put a “fence” around my data so that it’s protected for future generations?[1]

This brings me to the first opportunity and risk for farmers — data ownership.

Farmers and Data Ownership

As business owners, farmers face a very real risk from many ag companies with whom they do business because: 1) companies gain access, control and sometimes ownership over the farmer’s private data; and 2) these companies can lock farmers into their data policies.

At the center of this growing concern is the method in which ag companies typically collect and use a farmer’s data. To understand it, let me provide a consumer-facing illustration that everyone understands — Google.

When I choose to use Google to search the web (for free), I understand that Google is collecting information about me through my interaction with their technology. I know that Google turns this collected data into information by combining it with other datasets. Further, I realize Google makes money from selling this information to marketers that want to learn more about me. In spite of this, I choose to use Google search because it is of value to me, and it's free.[2]

On the other hand, when I purchase a license to use Microsoft Office, I gain access to tools like Microsoft Word, Microsoft Excel and Microsoft PowerPoint. These tools provide value to me. When I use these tools, Microsoft does not get rights to the content I create. Could you imagine the types of congressional hearings we’d be having on that topic — if Microsoft treated its customers the way big ag treats their customers?

When a U.S. farmer spends hundreds of thousands of dollars on a new piece of equipment, the largest manufacturers profit from the initial equipment sale PLUS they profit from the data generated from the farmer using that equipment. The collection of this data often happens without the farmer’s knowledge due to complex and heavy-handed user agreements.

While the fact that Google is collecting search data doesn’t bother me as a consumer, the stakes are much higher and far different in the farmer example. The data being collected by

many big ag companies is the farmer's Intellectual Property — the special and unique formula or "secret recipe" for operating their successful business.

Imagine if we, as a user of Google, asked for its search engine algorithms. Or, as a customer of Microsoft, if we asked for its source code to the Microsoft Office Suite? Asking a farmer for their "secret recipe" would be bad enough, but tricking them into signing away that unique formula with complicated legal agreements is appalling to most and the main reason I am here today.

We believe farming practices represent Intellectual Property that could be copyright protectable. Yet, today, it is difficult to establish who owns this information because farmers are caught in the habit of unknowingly giving this data for free when they sign complicated legal agreements pertaining to an entirely different subject. It is my personal motivation to help farmers by providing alternatives with upside potential.

I've been working for the better part of three years with the American Farm Bureau Federation (AFBF) to address these issues.The AFBF has shown great leadership in trying to bring transparency to these confusing legal contracts farmers are required to sign. Working with commodity groups, farm organizations and agriculture technology providers, the AFBF established the Privacy and Security Principles for Farm Data in November 2014. Thirty-seven different organizations participated in drafting the "Core Principles" document. Many of these organizations were very opinionated around the wording of the Ag Data Transparency Evaluator's ten questions, but only nine of these companies have agreed to become Ag Data Transparent! The ones who haven't signed are challenging the very need for "ownership" of farm data to be defined in the "Core Principals."

Make no mistake about it, these companies are intentionally delaying participation because they hope this issue will blow over and farmers will continue to operate the way they have in the past — by unknowingly checking a box in a legal contract in order to take delivery of their product.

Missouri Farm Bureau President Blake Hurst of Tarkio, Missouri describes the situation like this: "So much of what we do is done by habit. As soon as we get in the habit of giving that data away, no company is going to remark on the fact that it is a heck of a good deal for them. If we don't start out doing it the right way, it will be very harmful to farmers in the future."

In agriculture, we are at a point in time where there is a great opportunity to "do the right things for the right reasons" on behalf of the people who produce our food.

Data Interoperability

We know the genetic yield potential for corn in the U.S. is over 500 bushels per acre, yet the national average for yield is about 170 bushels per acre. Having farmer-controlled digital records (such as Electronic Field Records) to document farming practices will help U.S. agriculture better determine best practices farmers. Those records enable farmers to make better decisions, identify efficiencies, boost productivity and mitigate risks, as well as aid the industry in streamlining the manual processes required to participate in Federal programs and crop insurance.

These kinds of ag data benefits, however, require agriculture to get past roadblocks to data interoperability and over the "not-invented-here" syndrome. Farmers need a uniform standard that allows data to be portable and enables them and their trusted service providers to make real use of the information.

The need for data interoperability is not a new issue. My written remarks contain an excerpt from the testimony of the late Neal Patterson, who spoke before the Senate Committee on

Health, Education, Labor and Pensions in June of 2015.[3] Neal was a personal friend and mentor of mine as well as co-founder and CEO for Cerner, a leading health information technology company.

Neal believed, as I do, in the parallels between Electronic Health Records and Electronic Field Records. His testimony stated: "The intersection of healthcare and IT is one of the most important in modern society. Every citizen touches and depends on both."[3]

I absolutely believe the same is true for agriculture, everyone eats. Every farmer has a right to access and use their data, regardless of where it came from or what system contains it. We should encourage the flow of information that could help farmers — and their trusted advisors — to make better-informed decisions about their businesses and food production.

In agriculture, sensor technology and communication protocols exist for data to move quickly across different systems; however, many existing companies are not interested in building tools that would allow standard data to move efficiently. At Farmobile, we build technology that supports interoperability; we are a neutral provider that enables farmers to compare "apples to apples" when looking at products and services offered to them.

It is not by accident that big ag companies use their war chests of cash to hold farmer data hostage in their platform. They make it very labor intensive to move the data from one system to another. I believe in properly aligning incentive structures to drive standardization and financially benefit farmers — who are the creators of Electronic Field Records. The Electronic Field Record is a universal commodity in support of digitizing agriculture, and both farmers and consumers benefit.

Farmobile is the first company to build a business model around the monetization of standardized farm data whereby farmers share in the revenue, and data buyers can drive further innovation as the consumers of this valuable information. This is a powerful new revenue opportunity — a true win-win for farmers and the industry. (Figure 1)[4]

The idea of farmers harvesting their data and selling it as a new "crop" is a game-changer. It adds economic strength to rural communities, and also contributes to food safety — which is in the national security conversation.

Real-time Data and the Impact on Commodity Markets

After graduating with a Bachelor of Arts in Financial Economics from Gustavus Adolphus College in St. Peter, Minnesota, I spent the next 20 years trading agricultural commodities — the pure economic theory of supply and demand fascinated me and still does today. I first traded for the Pillsbury Company and then for a large regional player, The Scoular Company. When my career began, commodity trading was done "in the pits" using an open outcry system. There was an inherent time delay to disseminate pricing data — first from the pits in Chicago to the local grain buyers, then from the grain buyers to the farmers. This created an unfair advantage for those, who could afford to pay for the real time pricing feeds. For years, this opportunity was used to take advantage of additional margin — and the farmers paid the freight for decades.

The last 10 years of my trading career were all about challenging the status quo in the commodity trading world and changing sides from being the buyer to helping the seller. My company helped farmers become better grain marketers by utilizing new technology, which enabled them to take advantage of real-time data feeds in their marketing plans. This opportunity was fueled by the Chicago Mercantile Exchange acquisition of the Chicago Board of Trade which rapidly accelerated the use of electronic trading and hedging.

Today a similar opportunity exists to ramp up the creation of farm data into “tradeable” information in the form of Electronic Field Records. To work, the data must be interoperable and available in real-time to those who desire to purchase it. This data liquidity will dramatically accelerate the foundational science to help solve the looming global food challenge and identify best practices, minimize environmental impact and maximize nutritional content of food being produced. Every time this information is “sold,” it is with the explicit permission of the farmer, and the farmer who created it shares in the revenue. The same digital information can be sold multiple times with an opportunity to create an estimated $1billion annually of new revenue returned to rural agricultural communities of America.

Once you get something faster, you rarely go back. The commodity markets are no different. I will challenge anyone to debate the notion that real-time data, data ownership and interoperability would not be good for the farmer.

The reason that there is so much volatility in the agricultural markets is because of the massive time lag in getting the information. The USDA is the gold standard in historical commodity information. However, this information is released three weeks after it is observed due to the process required to get that information in the right place. The delay causes much of the volatility given the fact that most row crops are alive about ninety days and it takes about 21 days to get the data from the county offices to the markets in the form of USDA reports.

The technology exists today to get that information to the market daily. Faster information will dramatically reduce volatility in the markets and enable traditional risk management strategies, like hedging, to work again for farmers and the agricultural businesses that rely on these commodities to produce their products.

Many large commercial grain trading companies have reported significant losses in the markets recently as traditional hedging practices are introducing more risk than they are reducing. Faster access to better information will help normalize markets and monetarily benefit the farmers who choose to sell licenses to their information.

Conclusion

I’d like to conclude by revisiting history. It is 1960 and John Fitzgerald Kennedy is running for president when he visits a group of farmers in Senator Thune’s home state of South Dakota and he says: “The farmer is the only man in our economy who has to buy everything at retail, sell everything he sells at wholesale, and pay the freight both ways.”

It’s pretty incredible to think that — with all the change we’ve seen in the last 57 years — this statement is, unfortunately, as true today as it was then.

But disruption is coming and it’s coming in the form of technology. We need to make sure that our legal system keeps up with the technology available. Most farmers I talk with think we have probably two to five years to figure this out, or they will lose.

Thank you for your time today. I hope my testimony sheds some light on what is happening in the industry and I look forward to continued conversations about the many ways we can help the farmer finally stop paying the freight both ways. I firmly believe that, done right, data is the answer.

1. Farmers need policies that safeguard their data rights, and allow interoperability and accessibility to drive efficiencies and innovation in food production.
2. As you review this topic, ask yourselves:
    - Why is it ever “o.k.” for others to own or control a farmer’s data?

- How do we affect policies for true data interoperability?

I appreciate your openness to ideas and action from the private sector, as well as administrative and legislative change. I look forward to working with the industry, as well as members of the Committee, to advance this vision.

Thank you.

cc: Addendum

Addendum

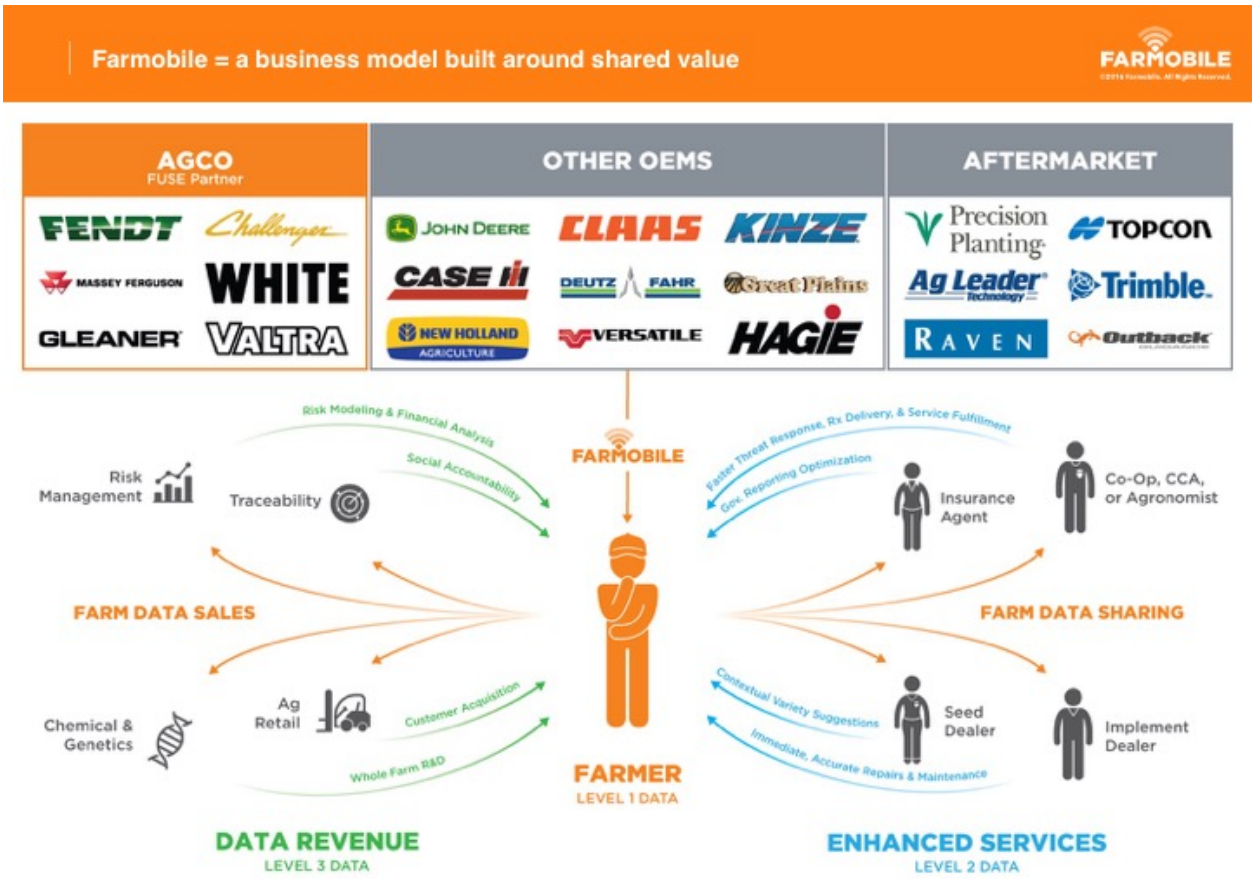
Additional References

[1] *The Problem of Vendor Lock-In for Ag, http://bit.ly/2xHeie5*

[2] *Farmobile: Changing the Game in Ag Data, http://bit.ly/2oObquw*

[3] *Testimony of Neal L. Patterson, Co-founder, Chairman and CEO of Cerner Corporation, U.S. Senate Committee on Health, Education, Labor and Pensions, Hearing: Health Information Exchange: A Path Towards Improving the Quality and Value of Health Care for Patients, June 10, 2015, http://bit.ly/2zLI1YB*

[4] *Farmobile's Business Model (Figure 1)*



(Figure 1, Farmobile's Business Model)