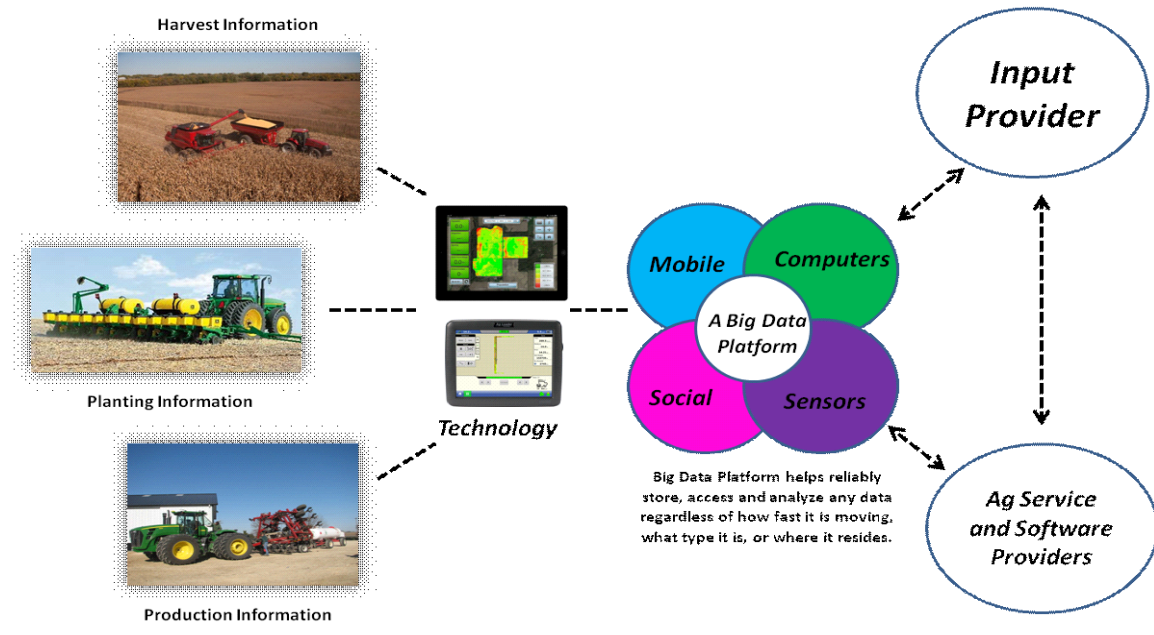


PONDER THESE NINE.....BEFORE YOU SIGN

Data Privacy Expectation Guide



Over the years, new technologies have enabled farmers to better match hybrids and varieties of seeds with specific field characteristics. Now technology has improved to the point that during the 2012 and 2013 crop years, several seed, fertilizer and equipment companies worked with select farmers to monitor and collect data on such variables as planting population, seed hybrid planted, soil topography, fertilizer usage and yield data on a site-specific basis.

While companies have gathered and analyzed agronomic, yield and other farm data for some time, the level and the amount of real-time information gained at a micro-level unit is a big change. **This data on its own is just a pile of numbers, but when analyzed and interpreted the information is useful to the farmer—and is of value to the companies providing the service to the farmer. One of the fundamental unanswered questions is “Who controls the data?”**

Farmers who use precision technologies provide their data for free to a company to get access to a “prescription” for their individual crop ground. Usually that prescription enhances the overall profitability of the farming operation, but there is no guarantee. In addition to being paid for its service, a company has access to the individual production data from all of its farmer clients. A company may also collect personal information that identifies you as an individual when you purchase or request a specific company product or service, information you provide in response to market research questions and/or when you sign up for informational forums. This information could include your name, address, telephone number, email, credit or banking information and other demographic details such as age and/or gender.

| Personal Information | Non-Personal Information |
|---|---|
| Name | Browser Information |
| Postal address | Information collected through cookies, pixel tags and other technologies |
| Telephone or fax number | Demographic information and other information provided by the owner |
| Email address | Aggregated Information |
| Gender | GPS coordinates |
| Date of Birth | Soil type |
| Credit and debit card number | Moisture patterns |
| Banking Information, such as account and routing numbers | Yield |
| Vendor tax ID numbers | Products used |
| National ID numbers such as Social Security numbers | Agronomic observations |
| Financial information when you apply for credit | Management practices |
| Passwords and reminder questions/answers | Herbicide, pesticide and fertilizer usage |
| Purchase history | Weather Information |
| Date Information | Seed variety |
| Time Information | Planting population |

In late 2013, the American Farm Bureau Federation and several state Farm Bureaus met directly with or otherwise engaged several agricultural technology providers that are already collecting and utilizing “Big Data” in their marketing and services to farmers. During these discussions, it became clear that Big Data technology will expand at a rapid rate over the next few growing seasons. Many producers will have the new technology offered to them in the 2014 crop year.

[Following are nine questions to help you consider the use and privacy of your data.](#)

1.) [Do I own the data?](#)

The consensus answer from companies investing in “Big Data” is that the farmer owns his or her individual data. However, if you agree to share your data, it is important to understand that it will be collected and stored in the company’s database, and is not retrievable nor can it be erased.

Data ownership may be better understood by thinking about a simple download of a new operating system on your smart phone. When you are offered that free upgrade option, you must check a box that says you agree with the terms of service. Most of us bypass actually reading the terms of service and simply “check the box.” It’s that “checking of the box” that allows search engines like Google or Yahoo to track and tabulate which shopping sites you visit or which destinations you browse for plane ticket prices. That permission also allows those companies to

use that data to advertise targeted discounts or sales to you the next time you log onto the internet. The providers have offered you a free service (rather than forcing you to use a travel agent to book a ticket or to go to a store to check out merchandise). In return they are able to track your interests and use that information to market similar products to you.

This is the same concept that many precision agriculture technology providers have emulated. **The farmer owns the data, but once it is transmitted to a company, the data is aggregated with other farmers' data. Aggregated data is then "owned" by the company.**

All of the ag providers we contacted offer farmers similar terms of service options and ask that you simply check the box if you agree. Just as you forfeit your ownership of data in the smart phone example, you forfeit your privacy with an ag technology provider if you check the box or boxes – regardless of whether or not you understand to what you have agreed. A company will almost certainly require you to give them control of your data in order to get access to benchmarking statistics, services, prescription services for seed planting rates or fertilizer applications and other products that could benefit your operation. **In simple terms, you own your own production data, but when you agree to allow a company to use it, the resulting aggregated data is owned by the company, which in turn allows them to decide if, how and when they share all or parts of the aggregated data with you. Again, this is why it is critical that you read the fine print and ask questions rather than just "check the box".**

2.) How will my data be used and what benefits can I expect from allowing a provider to include my data in a "Big Data" database?

It depends. The company will likely analyze it and provide you information under the terms of their specific service agreement. Depending on their business model, a company may or may not aggregate or anonymize the data. The way the aggregation or anonymization is done varies widely among the various companies. If you decide to allow a company to use your individual farm data, it can use the data to fulfill requests for products, services and information that are specific to a single piece of land or equipment. The company may aggregate the information and provide you with customized solutions tailored to your field or needs. This could result in higher yields, lower input costs and improved field efficiencies such as equipment operator performance, total downtime and actual harvest and planting times.

The use of your equipment and production data could deliver benefits by having equipment malfunctions targeted sooner with early alert dealership notifications. Dealers may be able to help customers work around a possible problem or develop routines that identify changes in machine performance. It may allow equipment to automatically adjust or retrieve information from the dealer on possible manual adjustments by the operator.

3.) Will I control the management of that data?

You control with whom you share your individual data. BUT once you allow the company to have your data, they may share it with other companies. For example, assume an equipment company and a seed company have signed a joint venture: You may agree to share your data with the equipment company, but without reading the fine print, “checking the box” may also allow the equipment company to share the data with the seed company or others involved in the joint venture. If the company is allowed to share the data with other companies, consideration should be given to whether you have the right to decline third-party interaction and access to your data.

4. What is aggregation of data? How does aggregation protect me?

Companies compile data segments and look for averages, trends and other key indicators from farm or field level data. Most companies stress they likely will use and/or report the aggregated data, but will not report a specific individual’s data in a manner that would allow anyone to be personally identified unless the individual specifically permits that use and dissemination. That specific interaction and transfer of data would be confidential between you and the company representative handling the data.

A non-farm example of individual data being aggregated to benefit a larger audience is real-time traffic congestion maps. Google collects Global Positioning System (GPS) location coordinates from millions of cell phones every few minutes. It compares the current location relative to the location from a previous sampling period and calculates the speed at which the cell phone was moving. If the cell phone was essentially stationary, Google then knows traffic has bogged down and they mark that section of the road as congested. Drivers can view a map and decide to whether to reroute around the congestion. Google knows exactly where a cell phone is at specific points in time, which may be considered private data. But by collecting and aggregating the data, significant value is provided to a much larger group of individuals without sharing specific location data on specific individuals.

5.) Is my personal farm data anonymized? How is “anonymize” defined?

The definition of “anonymize” varies by company. Even if your name is stripped from the data, it can indirectly still be used to trace back to you. For instance, non-personal information such as GPS coordinates are associated with a field and may allow for traceability of your identity back to you even without your physical name present within the data. When considering the anonymity of your personal data, refer to the table above in the first question and ask questions of the company from whom you are purchasing the technology or service about potential concerns.

Following are two examples pulled from the website of Big Data providers regarding anonymized data:

| Company 1 | Company 2 |
|---|--|
| "Anonymized data are data that have modified or combined with other similar data from other customers so that any individual information about a customer, their employees or their business operation has been removed." | "To be anonymized, the data must be aggregated or combined from a collection of at least 2,000 data points." |

6.) Can I stop sharing my data once I have agreed to share?

Yes. Big Data providers usually allow you to stop sharing your data at any time. HOWEVER, any data previously submitted is not retrievable and will not be erased from the company database. **It is important to ask the question, but always assume that once you give your information to a company, it cannot be retrieved.** In addition, most companies will only provide you services, such as field prescriptions, if you allow them to have access to and use your data in other ways.

7.) Who else might have access to my data? Can it be released to the public or to a third party?

Big Data companies appear to be proactive in keeping their customers' data safe and confidential. Most of their websites tout their commitment to confidentiality and their policy of not sharing your data. However, some issues should be considered:

** Even though companies assure you they do not intend to share or sell the data now, a company can change their "policy" at any time;

** A court-mandated order could require companies to release the data and create a risk to farmers and their operation;

** The company may also have the right to share with others "in the family." For example, if an equipment company signed a joint venture with a seed company, you may be allowing both companies to access your data even though you only signed one data-sharing agreement; and

** If a farmer expects a service or a product from the company, the local representative will have access to their farm level data under the discretion of the farmer. This may well include local seed dealers who could be competing with you for cash rent or ownership of farmland, which could ultimately drive the price up while bidding for that ground. **Companies invested in data aggregation have repeatedly emphasized the importance of having someone at the local level know and understand YOUR data.** This means if you are dealing with a seed company, your local seed dealer will have access to at least some of your data. If you are competing against that seed dealer for cash rent, that may not be to your advantage. However, it's a bit of a

“Catch 22” in that if you don’t share your farm data with the local representative from the company offering the service, you will not likely be given access to the service the company provides.

When considering the purchase of a precision technology, it is important to read your options and ask questions on how each company’s policy is defined and interpreted.

| Company 1 | Company 2 |
|---|--|
| <p>*Note: Farmer has the choice of choosing yes or no. "The company may anonymize data from your account and share it externally for benchmarking and other information services. If you decline, data in your account will not be included and you will not have access to these services and tools as they are developed."</p> | <p>"If we use your data about your operation for purposes outside of consulting with your operation, we may aggregate and anonymize your data with similar data from other growers. The aggregated, anonymized data does not contain information that could be used to specifically identify you or your operation. We may also share your data within the family of companies and with contracted third parties to help us provide information and services that may be of interest to you."</p> |

8.) What is the value of my data to ME?

Most companies we have met with indicate they plan to charge up to \$10 per acre to aggregate, analyze and provide you feedback from the data you have submitted. “Big Data” should provide more efficiencies and opportunities for higher profits, but you will have to weigh those benefits against the additional costs associated with analyzing the data through some other means and your loss of data ownership/privacy. Some farmers are considering asking a company to pay them for their data rather than the farmer paying the company. **Our limited experience is that every company has been reluctant to share the quantitative value of farm level data that farmers provide to the company and equally reluctant to discuss the potential for paying farmers for their individual data.**

9. What is the value of my data to the COMPANY?

Technology providers will be able to produce better and more efficient products for you. But the aggregated “Big Data” will unquestionably have significant-to-substantial value to the company. Companies will likely use the data for external benchmarking purposes to strategically position themselves against their competition for a service, technology or product. In addition, some companies may use this data to build new crop insurance policies that should provide tremendous value to the company. Some farmers fear that companies could use the aggregated real-time data to position themselves or other “customers” at a competitive advantage

in commodity markets. Having access to vast amounts of real-time data would allow for the development of near instant commodity reports that could result in a tilting of the playing field between large and small companies as companies with access to this data would have a tremendous competitive advantage over those without access to this type or even level of real-time data – not to overlook the potential disadvantage to farmers themselves.

SUMMARY

The payback value of data generated from your farm's precision technologies is hard to determine. A single data point has minimal value, even to the individual whose farm or field generates that particular point. It is the collection and aggregation of data points that generates real value. Determining the level of risk and reward between what you provide in your data and what the company offers in its services from the data is difficult to value at this particular stage of Big Data expansion and will certainly demand careful assessment on your part.

This guide is not meant to be inclusive of all options, but instead a reference of topics farmers may want to consider prior to agreeing to share their data with a company. It is not intended to dictate a purchasing decision, but rather to educate and provide background to farmers to help make them aware of how their data may be used by companies that use precision technologies. Further, although care has been taken to ensure the accuracy of the information provided, we cannot guarantee the accuracy of this information.