

THE NEW FRONTIER: HOW SHARING OF BIG DATA IN AGRICULTURE INTERFERES WITH THE PROTECTION OF FARMERS' OWNERSHIP RIGHTS OVER THEIR DATA

I. INTRODUCTION

Technology is an ever-evolving entity with frequent changes and advancements tending to cause a ripple effect in the industries that depend on it most.¹ Technological advancements in the agricultural industry have moved some farmers beyond a handshake environment, where they met with their peers in the industry informally at a diner or at home and “talked shop”, and agreed to never reveal their colleagues’ secrets or processes to unknown parties.² Due to the advancements of technological systems available to farms, precision agricultural technology has been a tremendous boon to farmers.³ These technologies enable them to link information about growing conditions to sophisticated, computer-run farm equipment, allowing treatment of

¹ Telephone Interview with Marcus N. DiBuduo, Intellectual Property Department Chair, Shareholder, Dowling Aaron (Aug. 5, 2016).

² *Id.*

³ See generally Jacob Bunge, *Big Data Comes to The Farm, Sowing Mistrust*, THE WALL STREET JOURNAL (Feb. 25, 2014, 10:38 PM ET), <http://www.wsj.com/articles/SB10001424052702304450904579369283869192124> (explaining that use of the technology can possibly lead to greater yields and greater profits as a result.); Katherine Noyes, *Cropping up on every farm: Big data technology*, FORTUNE (May 30, 2014), fortune.com/2014/05/30/cropping-up-on-every-farm-big-data-technology/ (indicating that improved technology has allowed for entire fields to be mapped with GPS coordinates, such as planting tools monitoring seed placement or yield monitors allowing combines to measure the yield for every meter); Michael Hickins, *For Small Farmers, Big Data Adds Modern Problems to Ancient Ones*, THE WALL STREET JOURNAL (Feb. 25, 2014, 10:41 PM ET), <http://blogs.wsj.com/cio/2014/02/25/for-small-farmers-big-data-adds-modern-problems-to-ancient-ones/> (stating that Precision Agriculture Technology can improve both large and small scale farmers’ yields and also help manage overall risk); Lyndsey Gilpin, *How big data is going to help feed nine billion people by 2050*, TECH REPUBLIC (May 9, 2014), <http://www.techrepublic.com/article/how-big-data-is-going-to-help-feed-9-billion-people-by-2050/> (explaining that advances in available technology systems on farms has led to more prevalent use of precision technology by farmers).

areas of single fields differently according to the information generated.⁴

However, farmers generally have neither the manpower, the capital, nor the time to adequately analyze the data they collect.⁵ As a result, farmers have been increasingly engaging in contractual relationships with Agricultural Technology Providers (“ATPs”) to improve farm productivity and efficiency by collecting and analyzing data generated on their farms.⁶ This relationship can be demonstrated through the following hypothetical: Joe Farmer is a corn farmer, who has collected a substantial amount of data connected to his crop and harvesting practices. Joe cannot analyze all that data on his own and still maintain his farming operations, which is when he approaches an ATP like Monsanto or John Deere.⁷ The ATPs contract with Joe for access to his agricultural data (hereafter referred to as “Ag Data”) enabling them to provide recommendations so that Joe can increase his farm’s efficiency.⁸

While ATPs are offering services that can potentially give farmers a great benefit, the ownership of that data is undetermined.⁹ It is unclear whether the farmer owned it to begin with or whether the right of ownership was surrendered once the ATP received the data.¹⁰ For

⁴ Jacob Strobel, Note, *Agriculture Precision Farming: Who Owns the Property of Information? Is It the Farmer, the Company Who Helps Consults the Farmer on How to Use the Information Best, or the Mechanical Company Who Built the Technology Itself*, 19 DRAKE J. AGRIC. L. 239, 240 (2014).

⁵ Gilpin, *supra* note 3.

⁶ Bunge, *supra* note 3; Neal Rasmussen, Note and Comment, *From Precision Agriculture to Market Manipulation: A New Frontier in the Legal Community*, 17 MINN. J.L. SCI. & TECH. 489, 494 (2016); see James R. Walter, Note, *A Brand New Harvest: Issues Regarding Precision Agriculture Data Ownership and Control*, 2 DRAKE J. AGRIC. L. 431, 432 (1997).

⁷ See Gilpin, *supra* note 3; Dan Charles, *Should Farmers Give John Deere And Monsanto Their Data?*, NPR (Jan. 22, 2014), <http://www.npr.org/sections/thesalt/2014/01/21/264577744/should-farmers-give-john-deere-and-monsanto-their-data>.

⁸ See Bunge, *supra* note 3.

⁹ See Noyes, *supra* note 3; *Digital Disruption On The Farm*, THE ECONOMIST (May 24, 2014), <http://www.economist.com/news/business/21602757-managers-most-traditional-industries-distrust-promising-new-technology-digital>; Todd Janzen, *What Makes Ag Data ‘Ownership’ Unique*, JANZEN AG LAW (Jan. 15, 2016), <http://www.aglaw.us/janzenaglaw/2016/1/15/what-makes-ag-data-ownership-unique> [hereinafter Janzen, *What Makes Ag Data ‘Ownership’ Unique*].

¹⁰ See Noyes, *supra* note 3; *Digital Disruption On The Farm*, *supra* note 9; Janzen, *What Makes Ag Data ‘Ownership’ Unique*, *supra* note 9.

example, Joe provides the ATP with the data to be analyzed through a flash drive or e-mail.¹¹ His data can also be automatically uploaded from the farming equipment Joe uses to an ATP's cloud service.¹² This leads to questions that can be difficult to answer, including: what if Joe signed the ATP's contract without legal representation, or without even reading the provisions that make up the contract? Did he just sign away rights to property that should remain his? Is the ATP now able to use that data as it sees fit, selling it to third parties or using it to benefit its own products, all to Joe's detriment? These transactions between ATPs and farmers raise questions that are not easily answered.¹³

This Comment addresses the lack of clarity regarding Ag Data ownership between the farmers that produce the data and the agricultural companies that analyze that data. Farmers generally own their data but their property rights in the data are not adequately defined or protected by current law or by the agricultural industry, leaving them vulnerable to harm.¹⁴ Part II presents background on the generation and categorization of Ag Data, as well as how and why farmers are working with ATPs for data analysis. Part III addresses the various concerns arising from these advancements in technology, namely who can extend ownership over the data, why that ownership is important, and how an ATP's involvement complicates that determination. Part IV examines how data can potentially be protected through existing legal standards but how they ultimately prove inadequate in protecting a farmer's ownership rights. Part V recommends protecting data ownership through the implementation of better contract practices, new legislative protections, and data consolidation, which would allow farmers to benefit from, maintain control over, and retain legal protection over their Ag Data. Finally, Part VI concludes that the creation of proper protections of data ownership through a contractual or legal manner is vital to preserve farmers' rights to ownership of data generated by their activities.

¹¹ See Charles, *supra* note 7.

¹² *Id.*

¹³ See Noyes, *supra* note 3; *Digital Disruption On The Farm*, *supra* note 9.

¹⁴ See Janzen, *What Makes Ag Data 'Ownership' Unique*, *supra* note 9; Bunge, *supra* note 3; see also Russ Banham, *Who Owns Farmers' Big Data?*, FORBES, (July 8, 2014, 3:00 PM), <http://www.forbes.com/sites/emc/2014/07/08/who-owns-farmers-big-data/#4d329eeb3ce7>; see also Gilpin, *supra* note 3.

II. FACTUAL BACKGROUND

A. The Scope of Ag Data and The Creation of an Agricultural Data Prescription

Ag Data is the aggregation of the data generated and analyzed by precision agricultural technologies into a single repository.¹⁵ Precision agricultural technology is a “farming management concept that measures and responds to field variations for crops” through a number of tools.¹⁶ Such technology uses satellites, GPS tracking systems, sensors, and highly detailed digital maps to manage entire fields as if they were smaller plots of individually related land.¹⁷ This allows farmers to make much more efficient use of production inputs of their crops and monitor production output on both small and large scales.¹⁸

The volume and complexity of the collected data make it difficult to effectively use Ag Data.¹⁹ Since the first emergence of high-tech farm tools in the 1990s, farmers have been collecting digitized yield data about their farming operations.²⁰ Ag Data from these operations can be classified into five different “pipelines”: agronomic, farm management, land, machine, and weather.²¹ This raw data has no value until its conversion into information suitable for decision-making.²² The analysis of the generated data can be conducted across multiple locations and years to help analysts better unify and understand the

¹⁵ Ashley Ellixson & Terry Griffin, *Farm Data: Ownership and Protections of Farm Data*, AGMANAGER (May 31, 2016), <http://drum.lib.umd.edu/bitstream/handle/1903/18930/ellixson%20griffin%20farm%20data%20ownership.pdf?sequence=1&isAllowed=y>.

¹⁶ Gilpin, *supra* note 3.

¹⁷ *Id.*; Walter, *supra* note 6, at 443.

¹⁸ Walter, *supra* note 6, at 443.

¹⁹ Michelle Eauclaire-Kopler, *Big Data: what is it, really?*, OEM OFF HIGHWAY, (Jul. 8, 2016), <http://www.oemoffhighway.com/article/11564554/big-data-what-is-it-really>.

²⁰ Lina Khan, *Monsanto's scary new scheme: Why does it really want all this data?*, SALON (Dec. 29, 2013, 11:00 AM PST), http://www.salon.com/2013/12/29/monsantos_scary_new_scheme_why_does_it_really_want_all_this_data/.

²¹ Todd Janzen, *Defining the Ag Data Pipelines*, JANZEN AG LAW (Apr. 6, 2016), <http://www.aglaw.us/janzenaglaw/2016/4/6/five-ag-data-pipelines> [hereinafter Janzen, *Defining the Ag Data Pipelines*].

²² *2016 Journal of The ASFMRA: Big Data Considerations for Rural Property Professionals*, ASFMRA (Jun. 2016), <http://www.asfmra.org/wp-content/uploads/2016/06/441-Griffin.pdf>.

various differing results produced by complex interactions between climate, weather, crop and soil types, water, and management.²³ Typically, analysis of Ag Data would not occur until it was manually transferred from a tractor or a monitor to a computer, or a data filled USB stick was handed to an agronomist for analysis.²⁴

In response to the growing need for the analysis of Ag Data, ATPs have begun to offer farmers data-based “prescriptions” for a fee, which allow farmers to better utilize their Ag Data and increase their farm’s output.²⁵ The creation process takes less than a month to complete and is demonstrated through the following example.²⁶ The hypothetical Joe Farmer provides an ATP or a local certified dealer with his Ag Data, which includes field boundaries, historic crop yields, and soil conditions.²⁷ The ATP will then analyze Joe’s data with its own information about seed performance within different areas and soil types.²⁸ The ATP sends back a computer file with recommendations that Joe will up load into his equipment, which will allow him to plant based on the recommendations.²⁹ The ATP will provide further advisement and management tips to Joe by monitoring the weather and other factors.³⁰

Despite the substantial amount of effort needed, having such a data prescription provides farmers with a number of benefits that make their business more efficient, which is reflected in the resulting profits and harvests of the farmers and the ATP.³¹

B. The Benefits and Risks Arising from the Use of Precision Agricultural Technology

An example of the benefits that arise from the use of precision agricultural technology can be shown through FieldScripts, a

²³ Eauclaire-Kopler, *supra* note 19.

²⁴ Khan, *supra* note 20.

²⁵ Bunge, *supra* note 3; Rasmussen, *supra* note 6, at 494.

²⁶ Christopher Doering, *Big data means big profits, risks for farmers*, USA TODAY (May 11, 2014, 1:40 PM EDT),

<http://www.usatoday.com/story/money/business/2014/05/11/gannett-big-data-means-big-profits-for-farmers-but-trust-concerns-loom/8970299/>.

²⁷ Bunge, *supra* note 3.

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.*

³¹ *See* Hickins, *supra* note 3.

technology suite created by Monsanto, a major ATP.³² FieldScripts works between three systems owned by Monsanto subsidiaries: (1) Precision Planning, which makes “hardware and software assisting with seed space, depth, and root systems in fields”; (2) Climate Corporation, with its weather data analysis; and (3) Solum, a soil testing service.³³ FieldScripts can account for unpredictable changes of sunlight, shade, nitrogen, and phosphorus in the soil to a precise ten-meter by ten-meter grid.³⁴ Monsanto then combines this data with its seeds’ genetic properties, as well as climate predictions.³⁵ FieldScripts then forms precise planting instructions that are sent out to equipment in the field, and can possibly boost profits and savings.³⁶

For example, farmers would be able to pinpoint areas requiring extra fertilizer, saving them from spreading fertilizer across the whole field.³⁷ Crop yields in poorly performing areas would be boosted, preventing depletion of soil nutrients and would lessen excess fertilizer from entering the water table.³⁸ So far, FieldScripts or other similar types of prescriptive planting has resulted in greater yields to those who use such systems.³⁹ Additionally, these tools may help save input costs, and help the environment by reducing the amount of pesticides and chemicals used on that particular crop harvest.⁴⁰ However, use of these technologies can be difficult as it creates a dependency on the precision technology and will usually be incompatible with the various tools and brands other than those from the specific ATP used by the farmer.⁴¹

As the technology continues to grow, farmers have begun to be concerned about whether existing law adequately protects their ownership over Ag Data and what ATPs can do with the shared data.⁴²

III. THE QUESTIONS OF OWNERSHIP ARISING FROM THE GROWTH OF PRECISION AGRICULTURAL DATA

³² Gilpin, *supra* note 3.

³³ *Id.*

³⁴ Hickins, *supra* note 3.

³⁵ *Id.*

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

³⁹ Bunge, *supra* note 3; *Digital Disruption On The Farm*, *supra* note 9.

⁴⁰ Noyes, *supra* note 3; Hickins, *supra* note 3.

⁴¹ Gilpin, *supra* note 3.

⁴² See *Digital Disruption On The Farm*, *supra* note 9.

While farmers can expect a number of benefits resulting from use of Ag Data prescriptions, their use also comes with a number of concerns.⁴³ Many of the major ATPs in the industry have generally agreed that farmers own their data.⁴⁴ Despite this assertion, the inherent anonymization of the data during the ATP's analysis of farmers' Ag Data makes ownership unclear.⁴⁵ It is important for ownership of the data to be adequately determined, as failure to do so would allow for the data to be used in ways that can be detrimental to farmers.⁴⁶ For instance, leaks or sales of farmers' confidential information to competitors could occur, resulting in a loss to their competitive edge.⁴⁷ While ATPs state that farmers' ownership rights are certain, these assurances ultimately prove to be inadequate and potentially leave the farmers open to abuse.⁴⁸

A. The Agricultural Technology Provider's Interference with Farmers' Sole Ownership Over Their Ag Data

Farmers only have complete ownership and control over their Ag Data when they use their own farming equipment to generate, gather, and analyze all of their Ag Data and the farmers do not share any of that data with any third parties.⁴⁹ Farmers rarely fall into this category due to the high cost and complexity that comes with owning a complete precision farming system.⁵⁰ Most farmers involved with precision farming technology use a combination of their own equipment and those of commercial suppliers to gather and assimilate the data.⁵¹ Farmers do this after realizing they cannot handle all of the duties resulting from use of precision technology.⁵² Expert help is needed to handle the aspects of Ag Data that are beyond the farmers' abilities, which is how an ATP becomes involved.⁵³

⁴³ See Noyes, *supra* note 3; see Gilpin, *supra* note 3; *Digital Disruption On The Farm*, *supra* note 9.

⁴⁴ Doering, *supra* note 26.

⁴⁵ See Noyes, *supra* note 3; *Digital Disruption On The Farm*, *supra* note 9.

⁴⁶ *Digital Disruption On The Farm*, *supra* note 9.

⁴⁷ *Id.*

⁴⁸ *Digital Disruption On The Farm*, *supra* note 9.

⁴⁹ Walter, *supra* note 6, at 440.

⁵⁰ *Id.*

⁵¹ *Id.* at 443.

⁵² *Id.*

⁵³ See *id.*

The Climate Corporation, a Monsanto subsidiary that analyzes weather data, has stated that the shared data of a farmer will still be owned by the farmer, and will only be used to deliver and improve on the Ag Data prescription farmers initially contracted for.⁵⁴ Any use of the data by Climate Corporation beyond the scope of the farmer's Ag Data prescription—such as the brokering or sale of the farmer's data to a third party for research—can only occur through the farmer's explicit consent.⁵⁵ Sales representatives for other ATPs have also stated that farmers would continue to own whatever data is generated by and collected on their operations and could opt out of the ATP's cloud services if they so choose.⁵⁶

The American Farm Bureau Federation (“AFBF”), one of the major organizations representing the interests of farmers and others in the agricultural community, has stated that the data collected from precision technologies has value and should remain the property of the farmer.⁵⁷ During meetings between ATPs and the AFBF, both sides have agreed that “the data belongs to the farmers, but have yet to come to a consensus on how the information can be shared.”⁵⁸ While ATPs agree that farmers own their data, ATP contracts with farmers have not always embodied that principle.⁵⁹

Currently, farmers' data ownership rights and limitations on what ATPs can do with the shared data can be waived by the Ag Data Prescription service agreements, which are often not even read by the farmers signing them.⁶⁰ A recent survey by the AFBF revealed a high level of misunderstanding by farmers regarding data details found within their contracts.⁶¹ Fifty-five percent of the participating farmers

⁵⁴ Mike Stern, *Guiding Principles on Data and Privacy*, THE CLIMATE CORPORATION, <https://www.climate.com/principles/>. (last visited Jun. 27, 2016); Bunge, *supra* note 3.

⁵⁵ Stern, *supra* note 54.

⁵⁶ Khan, *supra* note 20.

⁵⁷ Doering, *supra* note 26.

⁵⁸ *Id.*

⁵⁹ *Digital Disruption On The Farm*, *supra* note 9.

⁶⁰ Rasmussen, *supra* note 6, at 500.

⁶¹ *Farm Bureau Survey: Farmers Want to Control Their Own Data*, AMERICAN FARM BUREAU FEDERATION (May 11, 2016), <http://www.fb.org/newsroom/farm-bureau-survey-farmers-want-to-control-their-own-data>; *see also Highlights of the Farm Bureau Big Data Survey – May 2016*, AMERICAN FARM BUREAU FEDERATION, May 2016, <http://www.fb.org/tmp/uploads/BigDataSurveyHighlights.pdf> (showing that seventy-nine percent of farmers who replied said that they have no awareness of the ways ATPs intend to use their data. In the 2014 survey, a similar question

said they did not know whether their contracts with ATPs indicated farmer ownership and control over their own data.⁶² Only thirty-three percent said there was specific indication within the contract that growers owned or controlled the data they generate, while twelve percent stated that their contracts had no indication on control or ownership.⁶³ Thirty-two percent of respondents said their contract has details about sharing data with third parties following approval of the data-owning farmer.⁶⁴ Fourteen percent said the contract has no prior approval requirement for data sharing, while fifty-four percent indicated that they were unsure.⁶⁵

While ATPs have indicated that a farmer's ownership of the Ag Data remains absolute, the question of ownership is not resolved, as the ATP's aggregation of the data can render it anonymous.⁶⁶ Data anonymization makes the identification of particular people based on stored data related to them more difficult if not impossible to accomplish.⁶⁷ This process is intended to protect individual privacy and make it legal for governments and businesses to share the

showed that thirty-seven percent had full awareness as to ATP intent toward their data, while thirty-seven percent has a slight awareness, and thirty-three percent had no awareness at all).

⁶² *Farm Bureau Survey: Farmers Want to Control Their Own Data*, *supra* note 61; *see also Highlights of the Farm Bureau Big Data Survey – May 2016*, *supra* note 61 (explaining that twenty-eight percent of farmers had never heard of these agreements, while thirty-nine percent showed awareness of them, but had not signed anything).

⁶³ *Farm Bureau Survey: Farmers Want to Control Their Own Data*, *supra* note 61; *see also Highlights of the Farm Bureau Big Data Survey – May 2016*, *supra* note 61 (demonstrating that “[twenty-one] percent of responding farmers said that there were express statements on how their data is to be used. [Seven] percent indicated there were no statements on how data is to be used within the contract. [Thirty-eight] percent of farmers were unsure on what their contracts said, while [thirty-four] percent did not have documentation”).

⁶⁴ *Farm Bureau Survey: Farmers Want to Control Their Own Data*, *supra* note 61; *see also Highlights of the Farm Bureau Big Data Survey – May 2016*, *supra* note 61 (showing that, in 2014, forty-eight percent of responding farmers indicated that their prior approval was required before data sharing could occur).

⁶⁵ *Farm Bureau Survey: Farmers Want to Control Their Own Data*, *supra* note 61; *see also Highlights of the Farm Bureau Big Data Survey – May 2016*, *supra* note 61 (explaining that, in 2014, nineteen percent of responding farmers were unsure if prior approval was required, while thirty-three percent indicated no prior approval was required).

⁶⁶ *See Digital Disruption On The Farm*, *supra* note 9.

⁶⁷ *What is data anonymization?*, WHATIS.COM (May 2015), <http://whatis.techtarget.com/definition/data-anonymization>.

provided data without having to constantly get permission.⁶⁸ Anonymization also enables the transfer of the information across boundaries, allowing for evaluation and analysis of the data, while simultaneously reducing the risk of unintended disclosure.⁶⁹ Once an ATP has received, aggregated, and anonymized the data, it is unclear what rights farmers do retain over the data or whether they have given up control of it.⁷⁰ Additionally, once the ATP has aggregated the farmer's data with data from other farmers, the data then becomes the property of the company and is often not retrievable.⁷¹

Even if there are contractual assurances that guarantee farmers do own that raw data, it is not obvious whether the farmer can access that data in a generic format.⁷² The importance of determining the ownership of Ag Data is that farmers can be subject to serious harm if they do not own it.⁷³

B. The Importance of Owning Agricultural Data

Generally, possession of the legal rights to, and complete control over, the information in question grants the ownership of data.⁷⁴ Farmers would be able to limit access to the data, control what is done to it, and have the right to transfer their privileges to the data to another party.⁷⁵ The possessor of these rights can also use these rights as defense against access to or illegitimate uses of the data.⁷⁶

The estimated annual worth for the Ag Data analysis market is twenty billion dollars.⁷⁷ However, smaller farms are unlikely to see that kind of monetary benefit resulting from their use of precision

⁶⁸ *Id.*

⁶⁹ *Privacy Technology Focus Group: Final Report and Recommendations*, JUSTICE INFORMATION SHARING, U.S. DEPARTMENT OF JUSTICE, OFFICE OF JUSTICE PROGRAMS (Sept. 19, 2006), http://www.it.ojp.gov/documents/privacy_technology_focus_group_full_report.pdf.

⁷⁰ See Noyes, *supra* note 3; *Digital Disruption On The Farm*, *supra* note 9.

⁷¹ Rasmussen, *supra* note 6, at 500.

⁷² Khan, *supra* note 20.

⁷³ See Doering, *supra* note 26.

⁷⁴ Lauren Manning, *Setting the Table for Feast or Famine: How Education Will Play A Deciding Role in the Future of Precision Agriculture*, 11 J. FOOD L. & POL'Y 113, 128 (2015).

⁷⁵ *Id.*

⁷⁶ *Id.*

⁷⁷ Doering, *supra* note 26.

agriculture technologies.⁷⁸ For example, FieldScripts is estimated to increase crop yields by five to ten bushels per acre.⁷⁹ Pricing corn at four dollars per bushel, this would result in a twenty to forty dollar increase per acre.⁸⁰ On a farm of 500 acres, that would result in extra revenue of \$10,000 to \$20,000.⁸¹ But that smaller farmer would have to pay Monsanto around ten dollars per acre for the service, which would end up being about \$5,000.⁸² This does not include costs of retrofitting old equipment or buying new equipment.⁸³ Larger farms, for instance one made up of 5,000 acres, would see increased revenues of \$100,000 to \$200,000, leaving them more than enough to offset their costs and payments for use of FieldScripts.⁸⁴ However, even great benefits come with equally great potential harms.⁸⁵

Over time, precision agricultural technology allows farmers to create years' worth of constructive information that can assist in making informed decisions about marketing, production and growth.⁸⁶ If farmers do not opt out of the service contract with an ATP, the ATP then has permission to use and distribute all of that accumulated data.⁸⁷ ATPs can say that they will not share it, but farmers need to be sure of that.⁸⁸ Farmers are concerned that the data from their operations could be sold to other ATPs, traders or commodity brokers.⁸⁹ An additional worry is that the data can find its way to other farmers or be used by ATPs to peddle more of their product because they will know how much more product farmers will be using.⁹⁰ While the ATP will see moving more of their product as a benefit to itself, it carries an existential threat to farmers, as they can be irreparably damaged if that data fell into the wrong hands.⁹¹ If someone had access to a farmer's

⁷⁸ Hickins, *supra* note 3.

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ *Id.*

⁸² *Id.*

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ See Banham, *supra* note 14.

⁸⁶ Strobel, *supra* note 4, at 246.

⁸⁷ Banham, *supra* note 14.

⁸⁸ See generally *id.* (explaining that farmers fear that their data can be shared to other ATPs or third parties, impacting commodity trends and the farmers' leverage over the products they buy from these companies).

⁸⁹ Doering, *supra* note 26.

⁹⁰ *Id.*

⁹¹ Gilpin, *supra* note 3.

expected acreage or yields, they would know all of the harvest's potential results.⁹² This knowledge would allow investors to buy options, adjusting pricing downwardly and causing profitability losses.⁹³ The data could also be sold to competitors or used to undercut neighbors for better land price deals.⁹⁴

With growing concerns that their data could be used against them, existing laws provide some protection for farmers, but they ultimately prove to be inadequate.⁹⁵

IV. EXISTING LAW INADEQUATELY PROTECTS FARMERS' PROPERTY RIGHTS TO THEIR DATA

A. Privacy Concerns

The current legislative framework in the United States regarding data protection and privacy of personally identifiable information is comparable to a patchwork quilt, as it is an overlapping and sometimes contradicting system of federal and state laws and regulations.⁹⁶ This is due to the lack of a single, comprehensive federal law regulating the collection and use of personal data.⁹⁷

Different privacy requirements cover different sectors of industry and data processing activities.⁹⁸ The definition of personally identifiable information also varies depending upon the underlying law or regulation.⁹⁹ Regulation occurs primarily on a sector-by-sector basis, through guidelines developed by governmental agencies and industry standards.¹⁰⁰ These laws are often narrowly tailored and

⁹² See Banham, *supra* note 15.

⁹³ *Id.*

⁹⁴ Gilpin, *supra* note 3.

⁹⁵ See Lina J. Sotto & Aaron P. Simpson, *United States*, in DATA PROTECTION & PRIVACY 2014 191, (Rosemary P. Jay ed., 2014), available at https://www.hunton.com/files/Publication/1f767bed-fe08-42bf-94e0-0bd03bf8b74b/Presentation/PublicationAttachment/b167028d-1065-4899-87a9-125700da0133/United_States_GTDT_Data_Protection_and_Privacy_2014.pdf; Janzen, *What Makes Ag Data 'Ownership' Unique*, *supra* note 9.

⁹⁶ Sotto & Simpson, *supra* note 95, at 191; *Data protection in United States: overview*, PRACTICAL LAW, <http://us.practicallaw.com/6-502-0467> (last visited Jan. 6, 2017).

⁹⁷ *Data protection in United States: overview*, *supra* note 96; Sotto & Simpson, *supra* note 95, at 191.

⁹⁸ Sotto & Simpson, *supra* note 95, at 191.

⁹⁹ *Id.* at 192.

¹⁰⁰ *Id.* at 191; *Data protection in United States: overview*, *supra* note 96.

address specific data uses.¹⁰¹ The Health Insurance Portability and Accountability Act (“HIPAA”) is enforced by the Department of Health and Human Services in the healthcare field.¹⁰² In a financial services context, financial services regulators work according to the Gramm-Leach-Bailey Act.¹⁰³ This act dictates how the firms subject to their regulation can collect, use, and disclose any non-public personal information.¹⁰⁴ These regulatory laws also have components regarding accountability and enforcement that have been increasingly used as regulatory enforcement tools.¹⁰⁵ For example, HIPAA details permissible uses and disclosures of protected health information, such as requiring privacy notices to individuals and setting information security safeguards.¹⁰⁶ Additionally, financial institutions under the Gramm-Leach-Bailey Act must provide notices to their consumers before sharing the information, detailing what data is being collected, who it will be shared with, how the data is used, and how it is protected.¹⁰⁷ The customer must also be notified of their “right to opt out of the sharing of certain information.”¹⁰⁸

The Federal Trade Commission Act (“FTCA”) is the primary federal privacy regulator of industries not subject to specific regulatory authorities.¹⁰⁹ It would likely be the “safety net” that protects an unregulated field like agriculture.¹¹⁰ The FTCA does not regulate specific data categories but is only a federal level consumer protection law prohibiting unfair or deceptive practices that fail to safeguard consumers’ personal information.¹¹¹ It applies to most companies and individuals doing business within the United States.¹¹² It is also used in enforcement actions toward companies who failed to comply with

¹⁰¹ Sotto & Simpson, *supra* note 95, at 191.

¹⁰² *Id.*

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ *Data protection in United States: overview, supra* note 96.

¹⁰⁶ Sotto & Simpson, *supra* note 95, at 193.

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*

¹⁰⁹ *See Data protection in United States: overview, supra* note 96; Sotto & Simpson, *supra* note 95, at 191.

¹¹⁰ *See Data protection in United States: overview, supra* note 96; Sotto & Simpson, *supra* note 95, at 191.

¹¹¹ *Data protection in United States: overview, supra* note 96; Sotto & Simpson, *supra* note 95, at 191.

¹¹² *Data protection in United States: overview, supra* note 96.

posted privacy policies and unauthorized disclosure of a person's personal data.¹¹³

"Section Five of the FTCA is the general consumer protection law in regard to privacy disputes and prohibits unfair or deceptive acts or practices involving commerce."¹¹⁴ The purpose of Section Five is to protect public interest and more narrowly protect industry members from "harmful effects of unfair practices by competitors."¹¹⁵ The FTCA only grants broad enforcement authority at the federal level to bring enforcement actions for these types of practices.¹¹⁶

In relation to agriculture, the FTCA takes action in numerous cases against unfair practices involving misrepresentations of various articles sold to farmers, but are "too numerous to mention."¹¹⁷ As the nation's primary privacy regulator, applying the FTCA to the farmer/ATP data analysis relationship would provide farmers with a tool that would help determine whether an ATP's business practices can unfairly impact the farmers' business.¹¹⁸ As the FTCA also has an existing rubric for deceptive acts, it provides a standard to use in determining how ATPs' existing practices can deceptively lead farmers towards services that appear to work in their benefit but do

¹¹³ *Id.*

¹¹⁴ Sotto & Simpson, *supra* note 95, at 191.

¹¹⁵ Hon. Ewin L. Davis, Member of Federal Trade Commission, Address Before the Thirteenth Annual Convention of the Tennessee Farm Bureau Federation, FEDERAL TRADE COMMISSION (Oct. 22, 1936), *available at* https://www.ftc.gov/system/files/documents/public_statements/673871/19361022_davis_the_federal_trade_commission_and_its_relation_to_agriculture.pdf [hereinafter Davis Address].

¹¹⁶ Sotto & Simpson, *supra* note 95, at 191.

¹¹⁷ *See generally* Davis Address, *supra* note 115 (explaining that "cases [of misrepresentation can involve] various field seeds, poultry medicine, feed and text books, baby chicks, dairy and stock feeds, nursery stock, cream separators, incubators, numerous farm implements and tools, fertilizer, [and] salt, [among others]").

¹¹⁸ *See Federal Trade Commission Act, Section 5: Unfair or Deceptive Acts or Practices*, (Mar. 11, 2004)

<https://www.federalreserve.gov/boarddocs/supmanual/cch/ftca.pdf> (explaining that congressional intent behind the FTCA is to provide "sufficient flexibility in the law to address [market changes] and unfair or deceptive practices that may emerge [from those changes.]" The act considers acts to be unfair where they 1) result or likely cause consumers to suffer substantial injury, 2) the acts cannot be reasonably avoided, and are not outweighed by any benefits to consumers.); Sotto & Simpson, *supra* note 95, at 191.

not.¹¹⁹ However, it could be argued that the FTCA only protects farmers against “misrepresentation, deception, or fraud in products sales” covering physical farm tools and commodities, but not data.¹²⁰

Privacy law could provide sufficient protection for a farmer’s Ag Data, but the lack of uniformity in the law regarding data protection and privacy across the United States makes application of it to Ag Data unlikely.¹²¹ However, protection under property law could provide farmers with sufficient protection for their Ag Data ownership rights.¹²²

B. Property Law

Under United States law, ownership is recognized through three types of property: real, personal, and intellectual.¹²³ However, Ag Data is difficult to categorize, as it is a hybrid of all three property types.¹²⁴

Real property covers primarily land, everything that is a natural part of the land, and anything that has been attached or erected permanently on it.¹²⁵ It can be either corporeal, such as soil or buildings, or incorporeal, such as easements.¹²⁶ Under real property, Ag Data could be considered as incorporeal due to data not existing unless it is gathered from the land, creating an inextricable link between the two.¹²⁷ However, extraction of the data from the land could present some difficulty as mineral deposits, trees, gas and oil wells are considered to be real property as long as they remain a part of the

¹¹⁹ See *Federal Trade Commission Act, Section 5: Unfair or Deceptive Acts or Practices*, *supra* note 95 (demonstrating that the determination of an act as deceptive requires that 1) the consumer is “misled or likely to be misled [by the representation, omission, or practice, 2) the consumer interpretation of the practice, representation or omission is “reasonable under the circumstances, and 3) those representations, omissions, or practices are material).

¹²⁰ See Davis Address, *supra* note 115.

¹²¹ See generally Sotto & Simpson, *supra* note 95, at 191 (showing that the U.S. lacks a dedicated data protection law and regulates mostly by industry.)

¹²² Janzen, *What Makes Ag Data ‘Ownership’ Unique*, *supra* note 9.

¹²³ *Id.*

¹²⁴ *Id.*

¹²⁵ *Property*, BLACK’S LAW DICTIONARY (10th ed. 2014).

¹²⁶ *Id.*

¹²⁷ Janzen, *What Makes Ag Data ‘Ownership’ Unique*, *supra* note 9.

land.¹²⁸ Once extraction occurs, the status of the extracted materials as real property ceases and they become personal property.¹²⁹

Personal property covers “any movable or intangible thing that is subject to ownership and not classified as real property.”¹³⁰ Ag Data could be considered to be personal property as it is a highly portable object.¹³¹ However, despite its portability, the data contains valuable information, which would be dealt with under intellectual property, which traditionally includes trademarks, copyrights, patents, and trade secrets.¹³²

Under the Copyright Clause of the U.S. Constitution, Congress is granted the power “to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”¹³³ These rights are conferred and detailed through the traditional doctrines of intellectual property.¹³⁴

Trademark protection is inapplicable to Ag Data as it covers “words, phrases, logos, or other sensory symbols used by a manufacturer or seller to distinguish its products or services from those of others [or] designate the source of goods or services.”¹³⁵

Copyrights automatically secure creators a property right in an original work of authorship that is fixed in any tangible medium of expression.¹³⁶ There is no express requirement by law for registration, publication or notice with the U.S. Copyright Office regarding a potential copyright.¹³⁷ The granting of a copyright gives the holder an exclusive right to reproduce, adapt, distribute, perform, and display the work.¹³⁸ While the ownership of data does grant the legal rights to and

¹²⁸ *Property*, *supra* note 125.

¹²⁹ *Id.*

¹³⁰ *Id.*

¹³¹ Janzen, *What Makes Ag Data ‘Ownership’ Unique*, *supra* note 9.

¹³² Janzen, *What Makes Ag Data ‘Ownership’ Unique*, *supra* note 9; *Intellectual Property*, BLACK’S LAW DICTIONARY (10th ed. 2014).

¹³³ U.S. Const. Art. I, § 8, cl. 8.

¹³⁴ *Intellectual Property*, *supra* note 132.

¹³⁵ *Trademark*, BLACK’S LAW DICTIONARY (10th ed. 2014).

¹³⁶ *Copyright*, BLACK’S LAW DICTIONARY (10th ed. 2014) (explaining that categories of copyrights include literary, musical, dramatic, choreographic, pictorial, graphic, sculptural and architectural works; motion pictures and other audiovisual works, and sound recordings); *Copyright Basics*, UNITED STATES COPYRIGHT OFFICE, <http://www.copyright.gov/circs/circ01.pdf> (Last visited Aug. 16, 2016).

¹³⁷ *Copyright Basics*, *supra* note 136.

¹³⁸ *Copyright*, *supra* note 136.

complete control over the information in question, Ag Data does not fit within copyright protection.¹³⁹ Facts cannot be copyrighted, nor does Ag Data appear to fit within a tangible medium, making copyright protection seemingly unsuitable for Ag Data.¹⁴⁰

While facts are not copyrightable, data can be protected under copyright if it can qualify as a compilation.¹⁴¹ Compilations of facts are generally copyrightable, where the compilation, through the author's selections or arrangement of the facts, contains sufficient originality that demonstrates a new work.¹⁴² Specifically, the author must not have copied the selection or arrangement from another work, and his work displays some minimal level of creativity.¹⁴³ For example, there could be copyright protection if the hypothetical Joe Farmer is able to show that the data generated by his farming practices is a compilation of data that he independently arranged prior to sharing it to the ATP.¹⁴⁴

Patents allow inventors to exclude others from making, using, marketing, selling, offering for sale, or importing an invention for a specified period, usually twenty years from the date of filing, and are granted by the federal government if the device or process is novel, useful, and nonobvious.¹⁴⁵ Databases and the data comprising them will generally not qualify as patent eligible subject matter.¹⁴⁶ Ag Data would not qualify for patent protection unless it is demonstrated that the data served some inventive purpose that had some type of novel use to the farmer.¹⁴⁷

While "ownership" of Ag Data under some of the traditional principles of intellectual property law remains unclear, farmers may be able to treat their confidential data in a manner similar to trade

¹³⁹ *Id.*

¹⁴⁰ *Feist Publications, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 344; *Copyright*, *supra* note 136.

¹⁴¹ DANIEL GLAZER ET AL., DATA AS IP AND DATA LICENSE AGREEMENTS, Westlaw Practical Law Practice Note 4-532-4243 (database last visited Jan. 6, 2017).

[hereinafter DATA AS IP AND DATA LICENSE AGREEMENTS]; *Feist* 499 U.S. at 344.

¹⁴² *Feist* 499 U.S. at 356-358; 17 U.S.C.A. § 101 (2010); *Copyright Basics*, *supra* note 136.

¹⁴³ *Feist*, 499 U.S. at 356-358.

¹⁴⁴ *See Feist*, 499 U.S. at 356-358.

¹⁴⁵ *Patent*, BLACK'S LAW DICTIONARY, (10th ed. 2014).

¹⁴⁶ DATA AS IP AND DATA LICENSE AGREEMENTS, *supra* note 141.

¹⁴⁷ *Id.*

secrets.¹⁴⁸ The Uniform Trade Secret Act defines a trade secret as (1) information that an individual (2) derives independent economic value, actual or potential, from the information not being generally known to the public or to other persons who can obtain economic value from its disclosure or use; and (3) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.¹⁴⁹ Some farmers do consider details about particular farming techniques or data on soil fertility and crop yields to be confidential, and akin to personal “trade secrets”.¹⁵⁰ For example, the trade secret definition can be applied to a farmer’s cornfield because the manner of growth can be considered as a formula, pattern, method, technique or process.¹⁵¹ In years where the harvest is good, it can create economic value.¹⁵² However, it is possible that the means for growing corn on that field is “generally not known or readily ascertainable” to other farmers or agronomists, which is why Ag Data does not fit perfectly within the trade secret definition.¹⁵³ While it would be tricky to extend the rule, a farmer who keeps the data for years and understands a particular field better than anyone else, probably has a strong argument that their farm data could be a trade secret.¹⁵⁴ However, such protection will only be provided if the farmer has taken reasonable steps to maintain its secrecy.¹⁵⁵

If property law fails to extend protection for farmers, farmers may be able to turn to legal principles existing at the common law level.

C. Common Law Protections

¹⁴⁸ 2016 *Journal of the ASFMRA: Big Data Considerations for Rural Property Professionals*, *supra* note 22.

¹⁴⁹ Cal. Civ. Code § 3426.1 (West 2012); Todd Janzen, *Is Farm Data a Trade Secret?*, JANZEN AG LAW (Sept. 20, 2015), <http://www.aglaw.us/janzenaglaw/2015/9/30/is-farm-data-a-trade-secret> [hereinafter Janzen, *Is Farm Data a Trade Secret?*] (explaining that information protectable under trade secrets includes formulas, patterns, compilations, programs, devices, methods, techniques, or processes).

¹⁵⁰ Khan, *supra* note 20; cunytv75, *BrianLehrer.tv: Baltimore Uprisings and Revisiting the Kerner Commission*, YOUTUBE (May 7, 2015), <https://youtu.be/FfN06LVyiyA?t=42m13s> [hereinafter *BrianLehrer.tv*].

¹⁵¹ Janzen, *Is Farm Data a Trade Secret?*, *supra* note 149.

¹⁵² *Id.*

¹⁵³ *Id.*

¹⁵⁴ *Id.*

¹⁵⁵ *Id.*

Some recent American case law has begun to treat data as any other property by granting it certain common law protections.¹⁵⁶ The court in *Thyroff v. Nationwide Mutual Insurance Company*, 8 N.Y.3d 283 (2007) held that traditional tort claims can be extended to data for interference with, or misappropriation of, another's personal property in the form of conversion.¹⁵⁷ Conversion is generally defined as an act of severe willful interference, without lawful justification, with an item of property in a manner inconsistent with another's right, whereby that other person is deprived of the use and possession of the property.¹⁵⁸

In some states, claims of conversion are recognized only when the property is *represented by documents or tangible property*, such as bonds, notes, bills of exchange, stock certificates, and warehouse receipts.¹⁵⁹ *Thyroff* found that the intrinsic value of information is not determined by the document's physical nature but by the information memorialized in the document.¹⁶⁰ However, the decision in *Thyroff* was limited to data stored on a computer, indistinguishable from printed documents that an individual took unauthorized possession of, and did not extend to all information types.¹⁶¹ The court in *In re Yazoo Pipeline Co., L.P. v. New Concept Energy, Inc.*, 459 B.R. 636 (Bankr. S.D. Tex. 2011) followed *Thyroff's* reasoning and found that data has a physical manifestation—the medium of storage.¹⁶² *In re Yazoo* further found that property would be tangible if it could not exist apart from some physical storage medium that a human user can access similarly to traditional tangible property.¹⁶³ The court also held that technological progressions changing the storage and access of property should not also change whether unauthorized control over that

¹⁵⁶ DATA AS IP AND DATA LICENSE AGREEMENTS, *supra* note 141.

¹⁵⁷ *See Id.*

¹⁵⁸ *Conversion*, BLACK'S LAW DICTIONARY (10th ed. 2014); DATA AS IP AND DATA LICENSE AGREEMENTS, *supra* note 141; *Miles, Inc. v. Scripps Clinic & Research Found.*, 810 F. Supp. 1091, 1094 (S.D. Cal. 1993).

¹⁵⁹ *Miles, Inc. v. Scripps Clinic & Research Found.*, 810 F. Supp. 1091, 1094 (S.D. Cal. 1993); *In re Yazoo Pipeline Co., L.P. v. New Concept Energy, Inc.*, 459 B.R. 636, 653 (Bankr. S.D. Tex. 2011); *See generally Property*, *supra* note 125 (explaining that property that has physical form and characteristics is referred as tangible property, while property that lacks physical existence is considered intangible property).

¹⁶⁰ *Thyroff v. Nationwide Mut. Ins. Co.*, 8 N.Y.3d 283, 292 (2007)

¹⁶¹ DATA AS IP AND DATA LICENSE AGREEMENTS, *supra* note 141; *Thyroff*, 8 N.Y.3d at 293.

¹⁶² *In re Yazoo*, 459 B.R. at 653.

¹⁶³ *Id.*

property is subject to a claim of conversion.¹⁶⁴ Both *Thyroff* and *In Re Yazoo* found that electronic records stored in computers were indistinguishable from printed equivalents, and can sustain a conversion claim.¹⁶⁵ Despite these decisions, other courts have found that because the hardware on which the data is physically located in remains technically unharmed and reusable, there can be no recovery for the loss of data contained within that hardware.¹⁶⁶

As a potential method to resolve this dispute, the court in *Miles, Inc. v. Scripps Clinic & Research Foundation*, 810 F. Supp. 1091 (S.D. Cal. 1993) established a three-part test to determine if a property right exists for purposes of conversion of intangible property.¹⁶⁷ “First, there must be an interest capable of precise definition; second, it must be capable of exclusive possession or control; and third, the putative owner must have established a legitimate claim to exclusivity.”¹⁶⁸

Applying this three-part test to Ag Data, it is possible that a property right exists over Ag Data to protect against conversion. First, it is possible a precise definition exists since Ag Data can be said to consist of five specific pipelines of data that farmers can generate during their operations.¹⁶⁹ Second, because farmers are creating an agreement with an ATP, and providing the generated data for analysis, farmers may have possession over the data sufficient enough to dictate who can see and work with it.¹⁷⁰ Finally, whether farmers can establish a legitimate claim of exclusivity over the Ag Data would likely have to be proven through on a case-by-case basis through evidence presented by the farmer demonstrating that they have legitimate claims.

¹⁶⁴ *Id.*

¹⁶⁵ *In re Yazoo*, 459 B.R. at 653; *Thyroff*, 8 N.Y.3d at 293.

¹⁶⁶ *America Online, Inc. v. St. Paul Mercury Ins. Co.*, 347 F.3d 89, 96 (4th Cir. 2003).

¹⁶⁷ *Miles, Inc. v. Scripps Clinic & Research Found.* 810 F. Supp. 1091, 1094 (S.D. Cal. 1993).

¹⁶⁸ *Id.*

¹⁶⁹ See Janzen, *Defining the Ag Data Pipelines*, *supra* note 21.

¹⁷⁰ See Todd Janzen, *A Closer Look At Farm Data Ownership*, LEXISNEXIS LEGAL NEWSROOM: ENVIRONMENTAL (Feb. 4, 2015), <https://www.lexisnexis.com/legalnewsroom/environmental/b/environmentalregulation/archive/2015/02/04/a-closer-look-at-farm-data-ownership.aspx> [hereinafter Janzen, *A Closer Look At Farm Data Ownership*].

As the existing laws regarding property protection do not appear to provide farmers with adequate protection over their Ag Data, a number of recommendations can be made to farmers to protect their data.¹⁷¹

V. RECOMMENDATIONS

In order to adequately protect the farmers' ownership rights over their Ag Data, farmers can follow certain contract provisions in order to provide safeguards against unauthorized usage of their data.¹⁷² Legislation extending existing trade secret or HIPAA standards over Ag Data of farmers can also prove to be a useful source of protection.¹⁷³ Finally, new, but relatively untested, data consolidation efforts by various organizations can give farmers another defense against potential abuse.¹⁷⁴

A. Contractual Solutions

Currently, there have been no publicly known situations showing misuse of a farmer's Ag Data.¹⁷⁵ Officials for major ATPs have stated that they "have no plans to sell data gathered from farmers and would only share data following customer consent."¹⁷⁶ However, a mere promise does not act as an ironclad guarantee that farmer Ag Data will not be used in those ways.¹⁷⁷ Some argue that assurances from ATPs about these principles are just marketing positions taken in order to

¹⁷¹ See *Ag Data Transparency Evaluator*, JANZEN AG LAW <http://www.aglaw.us/agdatatransparent> (last visited Jun. 27, 2016); see Janzen, *A Closer Look At Farm Data Ownership*, *supra* note 170; see Janzen, *Is Farm Data a Trade Secret?*, *supra* note 149; Strobel, *supra* note 4, at 248; *Farm Bureau Survey: Farmers Want to Control Their Own Data*, *supra* note 61.

¹⁷² See *Ag Data Transparency Evaluator*, *supra* note 171; see Janzen, *A Closer Look At Farm Data Ownership*, *supra* note 170 (arguing that of farmers and ATPs use the language set out in the Ownership Principle of the Privacy and Security Principles for Farm Data during the contracting phase, the Ag Data Transparency Evaluator will help to ensure that ATPs and their practices are conforming to what has been agreed upon).

¹⁷³ See Janzen, *Is Farm Data a Trade Secret?*, *supra* note 149; Strobel, *supra* note 4, at 251.

¹⁷⁴ *ADC Enters Pilot Phase for Farm Data Repository*, AG DATA COALITION (July 28, 2016), <http://agdatacoalition.org/adc-enters-pilot-phase-for-farm-data-repository/151#more-151>.

¹⁷⁵ Bunge, *supra* note 3.

¹⁷⁶ *Id.*

¹⁷⁷ *BrianLehrer.tv*, *supra* note 150.

entice prospective clients.¹⁷⁸ In fact, almost all of the major ATPs use contracts containing provisions clearly stating that the ATP owns the data and has the ability to control the data forever.¹⁷⁹ The AFBF wants the contracts that farmers form with ATPs to be very clear about what the farmers are signing for, which party is receiving the data, and whether the farmer will receive some compensation for their sharing of the data.¹⁸⁰

Based on current standards, farmers would have to be knowledgeable about the policies of each company whose products and services they use.¹⁸¹ To address this lack of industry-wide standards, the AFBF has drawn up a code of conduct called the Privacy and Security Principles for Farm Data (“Principles”), which states that farmers own and control their data.¹⁸² The Principles are intended to keep an ATP’s principles, policies, and practices of consistent among their contracts with farmers.¹⁸³ The Principles cover thirteen topics, including ownership of the data.¹⁸⁴

The Ownership Principle outlines a three-step process.¹⁸⁵ First, the person who farms the land owns the data generated by the farming operation occurring on that land.¹⁸⁶ Second, the farmer must reach an agreement with third parties involved in the farming as to who will own the data.¹⁸⁷ Finally, when contracting with an ATP, it is the farmer’s responsibility to ensure that the only data used is under the farmer’s ownership.¹⁸⁸ It also states that ATPs may not use the data beyond the purpose the contract allows for, and that ATPs must not sell or give the provided data to third parties.¹⁸⁹ Because courts refer to industry standards when determining questions of ambiguity, the Principles could qualify as such and be used as a measuring tool since

¹⁷⁸ *Id.*

¹⁷⁹ *Id.*

¹⁸⁰ Noyes, *supra* note 3.

¹⁸¹ *See id.*

¹⁸² *Digital Disruption On The Farm*, *supra* note 9; *Privacy and Security Principles For Farm Data*, AMERICAN FARM BUREAU FEDERATION, <http://www.fb.org/tmp/uploads/PrivacyAndSecurityPrinciplesForFarmData.pdf>.

¹⁸³ *Privacy and Security Principles For Farm Data*, *supra* note 182. (showing that, as of Mar. 3, 2016, thirty-seven ATPs have signed on in support of these guidelines).

¹⁸⁴ *Id.*

¹⁸⁵ Janzen, *A Closer Look At Farm Data Ownership*, *supra* note 170.

¹⁸⁶ *Id.*

¹⁸⁷ *Id.*

¹⁸⁸ *Id.*

¹⁸⁹ *Digital Disruption On The Farm*, *supra* note 9.

ATPs and farmers have created contracts using these Principles.¹⁹⁰ As extensive as these principles and practices are, they are not considered legally binding.¹⁹¹ However, they could be used to help draft nondisclosure agreements or licensing agreements before entering into a data-sharing contract, providing farmers with solid contractual language protecting their ownership rights.¹⁹²

Nondisclosure agreements are contracts where two parties agree that certain types of information passing between the parties or created by one of the parties will remain private and confidential.¹⁹³ This agreement should at least include what portions of the data will be regarded as secret, the receiving party's duties as far as preventing disclosure of the data, who data may be disclosed to, allowable uses of the data, and damages to be paid in the event a violation of the contract occurs.¹⁹⁴ Farmers could also protect their Ag Data through licensing agreements.¹⁹⁵

A license can be a certificate or document evidencing permission to do a particular act or series of acts upon another's property.¹⁹⁶ In regard to data, any third party's usage of data owned by another requires a license, provided that one or more intellectual property rights protect the data.¹⁹⁷ The purpose behind the issuance of a license stems from the competing interests of the parties.¹⁹⁸ The licensee, the party receiving the license, here the ATP, would process and aggregate the farmer's data for commercial exploitation through creation of new products and services, using the processed data to improve the ATP's existing operations, products or services, or third party licensing.¹⁹⁹ The licensor, the party giving the license, here the farmers, will want to maintain the confidentiality of their data, prohibit the use of it in ways other than for the licensor's benefit, and obtain access to and

¹⁹⁰ Janzen, *A Closer Look At Farm Data Ownership*, *supra* note 170.

¹⁹¹ *Id.*

¹⁹² *See* Strobel, *supra* note 4, at 248.

¹⁹³ *Id.*

¹⁹⁴ *2016 Journal of The ASFMRA: Big Data Considerations for Rural Property Professionals*, *supra* note 22; Ellixson & Griffin, *supra* note 15.

¹⁹⁵ DATA AS IP AND DATA LICENSE AGREEMENTS, *supra* note 141.

¹⁹⁶ *License*, BLACK'S LAW DICTIONARY (10th ed. 2014).

¹⁹⁷ DATA AS IP AND DATA LICENSE AGREEMENTS, *supra* note 141.

¹⁹⁸ *Id.*

¹⁹⁹ *Id.*

possibly ownership of the new data sets resulting from the licensee's processing of their data.²⁰⁰

Any data licensing provision placed within a contract must address ownership and use of the data, the scope of the license, and the treatment of original and derived data.²⁰¹ In a service agreement between farmers and ATPs, the farmer should seek specific acknowledgement from the ATP that the licensed data is the farmer's sole and exclusive property.²⁰² The license should specify what uses of the data are permitted, and should prohibit an ATP from using the farmer's data in a manner that does not advance the contracted services.²⁰³ The license can also provide that any derivative works of, based on, derived from or otherwise using any of the farmer's data are to be considered the farmer's data as well.²⁰⁴ The license must also require that an ATP will maintain the confidentiality and security of the farmer's data.²⁰⁵

Additionally, farmers could add in a liquidated damages clause, or one limiting the amount one party can seek in damages if the contract were to fail, into their contracts with ATPs.²⁰⁶ Parties contracting together are generally allowed to contract for liquidated damages if they find it is necessary in order to know with reasonable certainty the extent of liability for a breach of the agreement.²⁰⁷ Such a clause in a farmer/ATP contract should be properly identified as dealing with the misuse or prohibited data distributions.²⁰⁸ While the farmer will have to prove the breach in the event that the ATP uses the data beyond the agreed upon limits, the farmer will be guaranteed a specific amount without having to prove the amount of their damages.²⁰⁹

Contractual solutions can help resolve issues of ownership, but they are not the only one way that farmers and their attorneys can protect their rights over Ag Data. New legislation based on existing frameworks in other similar fields can be introduced to adequately support the farmers' rights to the data.

²⁰⁰ *Id.*

²⁰¹ *Id.*

²⁰² *Id.*

²⁰³ *Id.*

²⁰⁴ *Id.*

²⁰⁵ *Id.*

²⁰⁶ *Id.*

²⁰⁷ *Better Food Markets v. Am. Dist. Tel. Co.*, 40 Cal. 2d 179, 184 (1953).

²⁰⁸ See DATA AS IP AND DATA LICENSE AGREEMENTS, *supra* note 141.

²⁰⁹ *Better Food Markets*, 40 Cal. 2d at 184-185.

B. Legislative Solutions

Although the United States does not legally recognize ownership of Ag Data, legislative policies regarding Ag Data can be created and adopted based on existing frameworks in order to maintain privacy of Ag Data and have farmers retain ownership of the generated data.²¹⁰

1. Trade Secrets

In a legislative sense, the existing language defining trade secrets should not be changed; it should merely broaden to include Ag Data or data in general within its scope. Extending legislation placing Ag Data within the trade secret definition would let farmers protect portions of their operations that they find have some benefit to them due to its confidentiality.²¹¹ If trade secret status were extended to include Ag Data, in the event of a breach, a farmer could recover one of the following: actual damages, which could include lost profits; reasonable royalty, which uses “a hypothetical negotiation for licensing the trade secret,” or unjust enrichment, which seeks to return to the farmer the benefit that has been misappropriated by the ATP.²¹²

Creating similar trade secret legislature for Ag Data could be a viable solution for problems arising from the sharing of the data, but it is not the only option. There is a legislative system within the medical field that could provide as a suitable guideline for Ag Data protection.

2. HIPAA

The United States lacks a single, comprehensive federal law regulating the collection and use of data, with regulation occurring primarily by industry.²¹³ Accordingly, a potential avenue of legislative protection for Ag Data can be through the adoption of a legislative framework similar to HIPAA.²¹⁴ Some of HIPAA’s primary purposes are to mandate industry-wide standards for healthcare information, including protection and confidential handling of protected health

²¹⁰ See Janzen, *What Makes Ag Data ‘Ownership’ Unique*, *supra* note 9; Strobel, *supra* note 4, at 252.

²¹¹ Ellixson & Griffin, *supra* note 15.

²¹² *Id.*

²¹³ *Data protection in United States: overview*, *supra* note 96; Sotto & Simpson, *supra* note 95, at 191.

²¹⁴ Strobel, *supra* note 4, at 251.

information.²¹⁵ HIPAA protects data ranging from conversations conducted about a patient's care or treatment to information found in a patient's medical records or in their health insurer's computer system.²¹⁶ HIPAA grants patients the right to see and obtain copies of their health information, and the ability to consent to share that information for particular purposes.²¹⁷ Considering these rights granted by HIPAA, it is easy to see how implementing such practices to the Farmer/ATP relationship could better protect farmers' rights to their Ag Data.

There must also be procedures in place limiting views and access of patient health information to minimums necessary to accomplish intended purposes.²¹⁸ HIPAA achieves this through a Privacy Rule, which assures patients' health information is properly protected while allowing sufficient flow of health information "to provide and promote high quality health care and to protect the public's health and well-being."²¹⁹ The Privacy Rule define and limits circumstances of use and disclosure to instances permitted or required by the Privacy Rule or when authorized in writing by the patient.²²⁰

Enacting HIPAA-style legislation for Ag Data protection can ensure proper protection for farmers' ownership rights.²²¹ Any policies enacted would need to contain safeguards ensuring that the business or people who obtain access to the data do not improperly use or disclose that Ag Data.²²² Any use or disclosure of the Ag Data would require implementation of procedures reasonably limiting the use or disclosure of the data to a minimum amount needed to accomplish any intended purposes.²²³ Additionally, creating a Privacy Rule in relation to Ag Data would give farmers stronger protection than they would have with a standard confidentiality agreement.²²⁴ Farmers would gain more

²¹⁵ *Id.* at 252.

²¹⁶ *Id.* at 251.

²¹⁷ *Id.*

²¹⁸ *Id.*

²¹⁹ *Summary of the HIPAA Privacy Rule*, U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES, <http://www.hhs.gov/hipaa/for-professionals/privacy/laws-regulations/index.html>; *Data protection in United States: overview*, *supra* note 96.

²²⁰ Strobel, *supra* note 4, at 252; *Data protection in United States: overview*, *supra* note 96.

²²¹ Strobel, *supra* note 4, at 252.

²²² *Id.* at 253.

²²³ *Id.*

²²⁴ *Id.*

trust with ATPs through such a rule, as it would limit who can view the Ag Data, as well as prohibit use and disclosure of shared data without the written permission of farmers.²²⁵

Legislative action for the protection of farmers' Ag Data may be difficult to create, but applying trade secret or HIPPA style frameworks toward Ag Data protection might provide a suitable solution. If legislative action fails to work, farmers can look toward data consolidation as another avenue for protecting their Ag Data.

C. Data Consolidation

Data consolidation has farmers compile their data into a cooperative-style central repository for their data and presents a great opportunity for farmers to enhance their control and security, as well as maximize the data's value.²²⁶ Some farmers have considered "aggregating data on their own in order to decide what information to sell and at what price."²²⁷ Other farmers have joined with smaller technology companies who seek to limit ATP domination of the prescriptive-planting business by major ATPs.²²⁸ The most well-known consolidators are the farmer-run Agricultural Data Coalition ("ADC") and the ATP-backed Open Ag Data Alliance ("OADA").²²⁹

1. The Agricultural Data Coalition ("ADC")

The ADC is a new non-profit organization, made up of farm leaders and farmer-owned cooperatives, designed to help farmers be able to better control, manage and maximize their data's value.²³⁰ The purpose

²²⁵ *Id.*

²²⁶ *Farm Bureau Survey: Farmers Want to Control Their Own Data*, *supra* note 61.

²²⁷ Bunge, *supra* note 3; See *Farm Bureau Survey: Farmers Want to Control Their Own Data*, *supra* note 61 (explaining that farmers want control over the information collects about their fields through equipment and that implementing a "cooperative-style [data] repository" is the optimal solution to improving data integration, security issues, increasing data value to the maximum, and promoting transparency about data collection and usage).

²²⁸ Bunge, *supra* note 3.

²²⁹ See *New Farm Data Coalition Puts Farmers in the Driver's Seat*, AG DATA COALITION (Mar. 3, 2016), <http://agdatacoalition.org/new-farm-data-coalition-puts-farmers-in-drivers-seat/1#more-1>; Stern, *supra* note 54.

²³⁰ *New Farm Data Coalition Puts Farmers in the Driver's Seat*, *supra* note 229; Ag Data Coalition, FACEBOOK (Dec. 9, 2016), <https://www.facebook.com/AgDataCoalition>.

of the ADC is to provide better control and management to farmers of the electronic Ag Data and promote innovation in the agricultural market place.²³¹ The ADC's plan to achieve this involves the development of a farmer controlled cooperative data repository.²³² Farmers will be able to securely store and control the data generated by their equipment and practices and have it scrubbed, synced, and transmitted efficiently and uniformly to third parties of the farmer's choosing.²³³

To understand the ADC's platform, it helps to compare it to a bank.²³⁴ Currently, farmers have to store their own data, transmit it themselves, and deposit their assets across multiple banks in order to do business.²³⁵ Through the ADC's plan, farmers deposit their assets into a secure location.²³⁶ That asset is managed through the equivalent of an online banking system, like an ATM or an online transaction, and can transmit the data on the farmer's behalf wherever the farmer wishes.²³⁷ Currently, the ADC has entered into the pilot phase of their system to show how a neutral repository would connect Ag Data between machines, service providers, and growers.²³⁸

In theory, the ADC's proposal of such a data repository seems like a perfect olive branch to extend between farmers and ATPs to handle the issue of ownership created by the sharing of farmers' data, as it is organized with the farmers' best interest in mind.²³⁹ However, its infancy and the untested nature of their proposal might give pause to farmers thinking of using the ADC's services.²⁴⁰ While the ADC provides a farmer-run organization aiming to give farmers a guiding influence on how their data can be used and accessed, one ATP

²³¹ *Highlights of the Farm Bureau Big Data Survey – May 2016*, *supra* note 61; *New Farm Data Coalition Puts Farmers in the Driver's Seat*, *supra* note 229.

²³² *New Farm Data Coalition Puts Farmers in the Driver's Seat*, *supra* note 229.

²³³ *Highlights of the Farm Bureau Big Data Survey – May 2016*, *supra* note 61; *New Farm Data Coalition Puts Farmers in the Driver's Seat*, *supra* note 229.

²³⁴ *New Farm Data Coalition Puts Farmers in the Driver's Seat*, *supra* note 229.

²³⁵ *Id.*

²³⁶ *Id.*

²³⁷ *Id.*

²³⁸ *ADC Enters Pilot Phase for Farm Data Repository*, *supra* note 174.

²³⁹ *See New Farm Data Coalition Puts Farmers in the Driver's Seat*, *supra* note 229.

²⁴⁰ *See generally ADC Enters Pilot Phase for Farm Data Repository*, *supra* note 174 (showing that ADC's repository program officially began its test phase on July 28, 2016, in order to obtain farmer feedback on "pace and direction for ADC's data bank before it is officially offered to the entire farming community." Some farmers may choose to partake in the trial run, or simply wait to see how the system turns out).

presents another alternative that farmers can look to for data consolidation.

2. *The Open Ag Data Alliance (“OADA”)*

In a move to ease farmers' worries and to avoid their being locked into business with a single provider, Climate Corporation aims to align members of the agriculture industry to those new ownership standards through the formation of the OADA.²⁴¹ It is an association made up of farmers, industry organizations, companies who provide data and advisory services, and other agribusinesses.²⁴² OADA has taken on the task of developing a safe and reliable means for farmers to aggregate their data by serving as an independent body that ensures “interoperability, common data formats, and [industry-wide] security and privacy standards.”²⁴³ OADA is in the process of developing a series of open source application programming interface, or API, that will enable farmers’ hardware and software devices to communicate directly through a secure cloud network.²⁴⁴ These open APIs are compatible with a broad range of devices, regardless of the device manufacturers.²⁴⁵ Currently, a commercial demonstration of one of these APIs is available for farmers, and is free for anyone to make contributions and use.²⁴⁶

As a whole, data consolidation may resolve the ownership complications created by sharing data with ATPs, as it would serve as a neutral intermediary in the data exchange. However, based on the information available, farmers would likely be more interested in working with an organization that is working with farmers and their interests, like the ADC is currently doing.²⁴⁷ While OADA provides similar services as the ADC, the farmer connection that ADC retains appears to be the more preferable route.²⁴⁸ It is likely that farmers are

²⁴¹ Stern, *supra* note 54.

²⁴² *Id.*

²⁴³ Manning, *supra* note 74, at 127; Stern, *supra* note 54.

²⁴⁴ Manning, *supra* note 74, at 127.

²⁴⁵ *Id.*

²⁴⁶ See *Real-Time Connections API for Weather, Soil Moisture Data*, OPEN AG DATA ALLIANCE (Aug. 1, 2016), <http://openag.io/real-time-connections-api-for-weather-soil-moisture-data/>.

²⁴⁷ See *New Farm Data Coalition Puts Farmers in the Driver’s Seat*, *supra* note 229.

²⁴⁸ Compare *New Farm Data Coalition Puts Farmers in the Driver’s Seat*, *supra* note 229 and Stern, *supra* note 54.

better suited to help protect other farmers than an ATP, who is looking to profit from the farmers they contract with. However, the relative infancy of the concept gives a limited view as their potential benefits that only will be determined as data consolidation services evolve over time.

VI. CONCLUSION

The growth and advancement of precision agricultural technology available on farms has resulted in a substantial amount of data that is difficult to effectively use, leading farmers to turn the analysis provided by ATPs in order to make all that data work for their benefit.²⁴⁹ The help provided by ATPs through their data based prescriptions can improve yields per acre, help save input costs, and help the environment through lesser need for large amounts of pesticides and chemicals.²⁵⁰ Most ATPs agree that the farmer remains the owner of the data despite their involvement in the analysis.²⁵¹

However, the farmer's alleged ownership is undetermined due to the lack of legal recognition of ownership of data by the United States and the inherent anonymization by the ATP's aggregation of the data they receive, opening the farmer up to potential harm if that data can be freely used by an ATP.²⁵² Furthermore, privacy and property law, as they currently exist, could potentially include data within the guidelines set by their rules, but currently appear more likely to provide no protection over data.²⁵³ Farmers have begun to fear that if their data fell into the wrong hands, it could be used against them through sale to competitors or undercutting neighbors for better land price deals.²⁵⁴

This Comment has demonstrated that farmers and legislators have a number of ways to protect ownership of Ag Data.²⁵⁵ First, contractual actions, namely industry standardization or adding nondisclosure or

²⁴⁹ See Bunge, *supra* note 3; Rasmussen, *supra* note 6, at 494; Walter, *supra* note 6, at 443.

²⁵⁰ Noyes, *supra* note 3.

²⁵¹ Doering, *supra* note 26.

²⁵² See Parts III and IV.

²⁵³ See Sotto & Simpson, *supra* note 95, at 191; *Data protection in United States: overview*, *supra* note 96; Janzen, *What Makes Ag Data 'Ownership' Unique*, *supra* note 9.

²⁵⁴ Gilpin, *supra* note 3.

²⁵⁵ See Part V.

licensing agreements, could give farmers enough protection over their data to ensure that any data shared will not be used against them.²⁵⁶ Second, enacting legislative action similar to trade secret or HIPAA protection can provide farmers with sufficient protection for their Ag Data.²⁵⁷ Finally, data consolidation could ensure that access to the data and how it can be used remains at a farmer's sole discretion.²⁵⁸

We stand on the edge of a new frontier, faced with a new set of legal challenges arising from an ever-evolving technological future. Failure to provide adequate protection over a farmers' ownership rights over their Ag Data will allow for the occurrence of numerous potential abuses that farmers will have very little protection against.²⁵⁹

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²⁵⁶ See *Digital Disruption On The Farm*, *supra* note 9; Strobel, *supra* note 4, at 248.

²⁵⁷ See Janzen, *Is Farm Data a Trade Secret?*, *supra* note 149; Strobel, *supra* note 4, at 252.

²⁵⁸ *ADC Enters Pilot Phase for Farm Data Repository*, *supra* note 174.

²⁵⁹ See Janzen, *What Makes Ag Data 'Ownership' Unique*, *supra* note 9.

²⁶⁰ J.D. Candidate, San Joaquin College of Law, 2019. This comment would not have been possible without the support of numerous people. Immeasurable thanks go to my faculty advisor, Andrew Kucera, whose guidance and all-around brilliance was absolutely vital during the entirety of this comment's creation. My deepest gratitude goes to the entire SJALR Editorial Board for their invaluable experience and guidance throughout this process. Many thanks also go to the numerous friends and colleagues I accosted for additional feedback on this comment. This comment is dedicated to the memory of cartoonist Darwyn Cooke (1962-2016), whose own *New Frontier* helped me find the title for my own. Finally, to my parents: all the good in me is because of you. Thank you for always believing in me.